

FRUITFUL YEARS

"ALTHOUGH the area in orchards has decreased considerably since I first became interested in fruitgrowing, the progress made in management practices has resulted in an immense rise in production per acre and an overall increase in production of several hundred per cent. The industry today is a sound and important section of primary industry," writes the Prime Minister, Mr Keith Holyoake, in his Foreword.

Of the formation of the New Zealand Fruitgrowers' Federation fifty years ago Mr. Holyoake says: "The decision to provide an organised body to speak on behalf of the young industry has proved of great benefit to fruitgrowers."

The story of the Federation is a revelation of strength through unity; of progress and achievement through co-operation. It's a story of what can be accomplished when the resources of an industry are pooled for the common good.

"Fruitful Years" is, however, more than a history of the Federation. It traces the development of New Zealand's fruitgrowing industry from the time when, in 1915, representatives of the industry asked the Government to impose a tax on fruitgrowers, and had their request granted, so that they could organise on a national basis, up to the soundly-based industry of today, with its techniques that are as up-to-date and as efficient as anywhere in the world.

It hasn't all been smooth progress, for there was much trial and error and many problems to overcome. But there have been notable achievements. Undoubtedly the greatest was the establishment of the Apple and Pear Marketing Board which brought more order to the local marketing of pip fruit.

(continued on back flap)

Rex Monigatti

FRUITFUL YEARS

1941-1972
1941-1972
1941-1972

By the same author:

NEW ZEALAND SENSATIONS (1962)
NEW ZEALAND HEADLINES (1963)
FROM BELLS TO BLAZES (1965)

FRUITFUL YEARS

(An account of the development of New Zealand's
fruit industry from 1916 to 1966)

by

REX MONIGATTI

Published by

The New Zealand Fruitgrowers' Federation Limited
on the occasion of its Golden Jubilee

Published in 1966
by
The New Zealand Fruitgrowers' Federation Limited
Huddart Parker Building
Wellington

Printed by
FERGUSON AND OSBORN LIMITED
WELLINGTON

CONTENTS

<i>Chapter</i>		<i>Page</i>
	Foreword	
	Acknowledgments	
1	The Federation is Formed	11
2	The Industry Consolidates	14
3	Through Depression and War	25
4	Toward Better Times	39
5	The Fruitgrowing Districts	58
6	Citrus and Subtropical Fruits	71
7	Science Applied to Fruitgrowing	89
8	Cawthron Institute Research	81
9	A Million Young Trees	92
10	Apple and Pear Marketing	96
11	The Industry of Today	104
12	What of the Future?	110
	Appendices	
	(i) Federation Directors	113
	(ii) Federation Executive Staff	114
	(iii) Apple and Pear Board Members	115
	Advertising Supplement	

ILLUSTRATIONS

following page

Apples for export from Mariri in 1912	16
Apple picking in a Nelson orchard in 1916	16
Apple picking in Nelson in 1920	16
Cherry picking in the 1920s	16
Inspection of export fruit on the wharf at Nelson	16
Success and failure in orchard establishment in Central Otago	20
Lord and Lady Bledisloe, with Mr A. McKee	20
Hastings Branch office damaged by earthquake	20
New Zealand trade delegation bound for Ottawa Conference	20
Orange picking at Kerikeri	28
Lemon juice extraction at Tauranga	28
Harvesting tree tomatoes at Kerikeri	28
Chinese gooseberries for the Queen Mother	28
Assessing chemical constituents of processing peaches	32
Research on new peach variety	32
Grafting technique that eliminates many viruses	32
Grafting of apple shoot to virus-free seedling	32
Presentation of Nelson's millionth case of fruit in 1934 to Lord Rutherford	32
New Zealand Fruit Export Control Board in 1934	32
Mr Keith Holyoake in his fruitgrowing days at Riwaka	32
Orchard on gold-rush site in Conroy's Gully	32
Mr A. Taylor—a link with the pioneers of Conroy's Gully	32
Apple juice dispensed at Centennial Exhibition	40
The Federation directorate in 1941	40
Part of the Redwoods Valley orchard area	40
Orchards in the Frimley district of Hastings	40
Frost Fighting in Central Otago	40
Queen and Duke visit Hastings orchard	40

following page

Inspecting the foliage of a new nectarine at the Federation's Levin nursery	40
Australian girls help with the harvest at Mahana	48
Mr A. Osborne and his successor as general manager of the Federation, Mr A. C. Greer	48
Inspection of New Zealand fruit in London	48
Testing new spray materials	64
New concept of centre leader trees	64
Spore trap aids research	64
Pear harvesting at Hastings	64
The Federation directors	80
Manufacture of orchard equipment	80
A sprayer for the larger orchards	80
Orchard home at Greytown	80
Apple and Pear Board members	88
Apple and Pear Board's computer	88
Cool store at Port Nelson	88
Forklifts and pallets minimise risk of damage to fruit	88
Apple harvesting at Mahana	88
Special "fruit train"	88
Pear processing at the Apple and Pear Board's Nelson factory	88
Apple-packing contests at Hastings	106
An apple-packing contest at the Moutere Hills Fruit Show	106
Tractor platform for thinning and pruning	106
Big drainage project on Tasman orchard	106
Field day at Hastings	106
Stone fruit for export from Central Otago	106
Mariri packing house with the latest in graders	106

FOR E W O R D

I EXTEND MY CONGRATULATIONS to the New Zealand Fruit-growers' Federation on the occasion of its Golden Jubilee. The formation of the Federation fifty years ago was a momentous step for the young industry which expanded so rapidly in the preceding five years.

The decision to provide an organised body to speak on behalf of the young industry has proved of great benefit to fruitgrowers. The addition of a trading side to the activities of the Federation has also been of very great help and the wisdom of this move is shown in the present extent and soundness of its operations.

The fruitgrowing industry may be proud of its representatives who have served on the directorate of the Federation during the past fifty years, and under whose wise guidance the organisation has prospered and risen to its present stature. In my long association with the Federation, as a fruitgrower, Member of Parliament for a fruitgrowing district, Minister of Agriculture and Prime Minister, I have found the representatives of the industry to be men of vision and integrity who have always striven to improve the status of the fruitgrowing industry.

Although the area in orchards has decreased considerably since I first became interested in fruitgrowing, the progress made in management practices has resulted in an immense rise in production per acre and an overall increase in production of several hundred per cent. The industry today is a sound and important section of primary industry.

To fruitgrowers, the directors, and management of the New Zealand Fruitgrowers' Federation I extend my congratulations and good wishes for continued progress in the future.

KEITH HOLYOAKE

ACKNOWLEDGMENTS

THANKS FOR ASSISTANCE in the production of this book on New Zealand's fruit industry are due to a number of people. The Prime Minister, Mr Holyoake, kindly consented to write the foreword, and the Minister of Agriculture, Mr Talboys, contributed a special message. Other valued contributions have been made by Mr J. D. Atkinson, Director of the Fruit Research Division, Department of Scientific and Industrial Research, with a chapter on research; Dr C. R. Barnicoat, Director of the Cawthron Institute, Nelson, with notes on the Institute's work for the fruit industry; Mr T. F. A. Archer, 1950-66 President of the New Zealand Fruitgrowers' Federation, with a chapter on the future; Mr B. R. McLaren, Secretary of the Federation, with notes on the nursery at Levin; Mr W. A. Fletcher, citriculturist of the Department of Agriculture, with information on citrus and subtropical fruits; Professor J. A. Veale of Massey University; Professor T. M. Morrison of Lincoln College, University of Canterbury; Mr R. G. Hamilton, of the Department of Agriculture; Mr P. B. Daly, of the Apple and Pear Marketing Board; Mr J. Taylor, of Alexandra; Mr F. Sisson, of Christchurch; Mr G. Nola, of Auckland; and Branch Managers of the New Zealand Fruitgrowers' Federation. Messrs J. H. Parker, H. R. Sampson, T. F. A. Archer, H. E. Napier and A. Osborne—all with long experience in the industry and notable contributions to it—checked parts of the manuscript. The photographs are from a variety of sources, including the Alexander Turnbull Library, the National Publicity Studios, fruitgrowers, newspapers and commercial photographers. Finally, and not least important, the author would like to acknowledge a debt of gratitude to earlier editors of *The Orchardist of New Zealand*.



THE FEDERATION IS FORMED

HERE IS AT LEAST ONE INSTANCE of taxation by request in New Zealand's history, strange as it may seem. This most unusual, if not unique, request was made in a petition presented to Parliament by representatives of the fruitgrowing industry. They wanted fruitgrowers to be taxed to provide money to organise their industry.

The petition was discussed at a meeting of fruitgrowers' delegates and parliamentarians in the room of the Prime Minister, Mr W. F. Massey, at Parliament House in 1915. During the discussion someone accidentally switched on all the electric lights. "You can turn that switch off again, please," said Mr Massey. "The deputation has already thrown so much light on the subject that there's no need to call upon outside power." The parliamentarians were satisfied that the imposition of such a tax would be a move in the right direction. They agreed to support the petition. The outcome was the Orchard Tax Act, 1916, which imposed on all orchardists an annual tax of one shilling for every acre they had planted in orchard. The proceeds were to be paid to the New Zealand Fruitgrowers' Federation Limited, which was registered, under the Industrial and Provident Societies' Act of 1908, in October 1916 to further the interests of the fruitgrowers of New Zealand.

Fruitgrowing had been carried on in New Zealand in a more or less precarious manner since the arrival of the early settlers, and in the early 'nineties the Government had drawn attention to the prospects for commercial fruitgrowing. But it was not until about 1906 that there was any marked progress in the development of the industry. At that time improved knowledge of pest control and of marketing methods gave a boost to the industry in all the fruitgrowing countries. In 1910 New Zealand exported 5,650 cases of fruit and by 1914 the export total had increased to 68,000 cases. In those pre-war years New Zealand fruitgrowers were shipping to South American markets, and for quality and pack their fruit was

regarded as next to that of the famous apple-growing districts of the United States and Canada.

With the export trade making good progress, a planting boom set in. The "grow apples for export" slogan soon spread, and much land that had been regarded as worthless was opened up and planted in fruit trees. Much of the new orchard acreage was subdivided, cleared, ploughed, planted and sold by companies, and many of those who bought orchard properties at that time were professional people who had been convinced that, as absentee owners, they were on to a good investment. The companies painted a rosy future for the industry. One salesman, showing a party of would-be buyers over a newly-ploughed block, was praising the wonderful quality of the soil and holding forth about its exceptional friability, notwithstanding the fact that the open furrow along which the party walked was as hard as concrete. While the agent continued with his sales talk, a listener filled his pipe, then bent down and struck a match on the bottom of the furrow, and lit up. Everyone except the agent considered it a great joke.

For some years the area in orchard increased by about three thousand acres a year, though the export trade was dealt a setback by the war and the export of fruit from New Zealand ceased.

Efforts were made over a period of several years to form a federation of New Zealand fruitgrowers, but the difficulties seemed insurmountable. Those who attended the national conference at Wellington in May 1916, however, were more prepared to sink individual and district differences. The conference as a whole was of one mind in its determination to reach a settlement on the question of the basis of federation, but there was a major difference between those who advocated that the Federation should engage in trading and those who considered it should limit its activities to the organisation of growers, the discovery and development of markets and whatever else was necessary to promote the interests of the industry. Those who advocated trading pointed out that firms supplying growers with their requirements were charging more than a fair price for their supplies. The matter was placed in the hands of a well-chosen committee, which recommended that the proceeds of the orchard tax should be devoted to the advancement of the fruitgrowing industry as a whole, and particularly to developing various markets and to watching growers' interests in the matter of export shipping and local trade. It recommended also that the Federation should have powers to act later as a trading concern if this were necessary. Delegates agreed to those general principles, and thus the Federation became a reality.

"This conference will go down to posterity as a remarkable gathering, remarkable for its unanimity and for being the birth-place of an organisation destined to be the very hub and centre of our industry, our hope for the future, the guarantee to every man planting an orchard that he will have a market for his fruit," said its chairman, Mr T. W. Attwood, of Warkworth. "The very progress of our industry has made it imperative to organise our forces to enable us to deal successfully with the problems that greatly increased production will present to us in the future."

Mr R. P. Hudson, M.P. for Motueka, and Mr A. Wilson, of Auckland, who had taken prominent parts in the historic conference, tied in a ballot for the election of president of the Federation, but Mr Hudson withdrew. As a member of the House, he pointed out, growers would still have his services. Messrs A. P. Allport (Nelson), A. M. Robertson (Hawke's Bay), J. Longton (Canterbury), A. Davidson (Otago), J. Bennetts (Otago) and H. E. Anderson (Wellington) were elected to the directorate.

A national apple show was held in conjunction with the 1916 conference and raised about £300 for patriotic purposes. Speaking at the opening of the show, the Minister of Agriculture, Mr W. D. S. MacDonald, said the time had arrived when more intensive cultivation had to be undertaken, and there was no more attractive farming than fruit farming. Furthermore, he said, it was one of the enterprises that would help to solve the cost of living problem when the great value of a fruit diet was realised. The display of fruit at the show was an eye-opener to most visitors who little realised what New Zealand orchards could produce and why it was that New Zealand growers confidently claimed that their fruit could not be bettered for colour, quality, flavour and texture.

The Federation was established, in the words of its constitution, "to promote, foster and protect the fruit industry throughout the Dominion, and to establish a closer bond of unity and co-operation amongst all those engaged in the production of fruit." The key word was "co-operation." This was obviously essential if the industry was to make the hoped-for progress.

The constitution provided also for the district fruitgrowers' associations to apply for one or more £1 shares. With such limited capital and about £850 a year to come from the orchard tax, the New Zealand Fruitgrowers' Federation set about organising the growing and marketing sides of the industry. Mr F. J. Shelton was appointed secretary from 114 applicants and, with one typist as staff, he set up a small office in Panama Street, Wellington. Though resources were slight, there was a big job of work to be done.

2

THE INDUSTRY CONSOLIDATES

THE NEW FEDERATION was a combination of associations, and to obtain representation in it the individual grower had to belong to a registered association of fruitgrowers. It was the policy of the Federation directors to encourage every fruitgrower to become a member of an association, so that the Federation would become strong and able to secure benefits for growers which individually they would not be able to enjoy. Twenty-seven associations were represented at the Federation's annual conference in 1917.

The Federation directors decided to try to get established in each province a co-operative trading and distributing society which would include every grower in the province. Such a society would control the marketing of all the growers' output and would act in conjunction with the other provincial societies, under the advice of the Federation. This would have the effect of equalising the prices of fruit throughout New Zealand and would prevent loss through unnecessary competition. "A system of the equalisation of prices by a daily average would simplify distribution in regard to outside markets and direct-to-consumer trade and would enable a greater amount of fruit to be placed than at present, to the benefit of every grower," stated Messrs Wilson and Shelton in a circular to the fruitgrowers of Otago. "A system of grading by a competent and disinterested person would be essential to the fixing of the average price . . . A society formed on these lines, and under capable management, will undoubtedly prove a real success, and will relieve growers of much of the unnecessary labour and anxiety which at present make fruitgrowing border upon drudgery instead of the pleasure it ought to be." The Otago growers agreed that the time was ripe for the forming of an Otago co-operative company. They were thoroughly dissatisfied with the existing methods of marketing their produce and were ready to support any businesslike scheme that would give reasonable promise of improvement.

A second national patriotic apple show was held in Dunedin in May 1917, under the auspices of the Federation, and Auckland tied with Otago for first place in the inter-provincial contest. The following year it was Auckland's turn to stage the show. The purpose of these national shows, in addition to contributing to patriotic funds, was to demonstrate to the public the varieties and quality of fruit that New Zealand could produce and to encourage the production of a still better class of fruit. It was hoped also that the shows would help to convince people that fruit was not merely a luxury but ranked among the necessities of life. Auckland left no stone unturned in planning to ensure the success of its show. Some idea of the thoroughness of the preparations can be conveyed by the multiplicity of committees that were formed. They included an organising committee, a hall committee, a finance and publicity committee, the Auckland provincial exhibits committee, a press committee, a decorative committee, an educational committee, a ladies' committee, a musical committee, an apiary committee and, perhaps because of all this organisation, an emergency committee! The result was doubtless worth all the effort, judging by this *Auckland Star* comment: "The display taken as a whole is a magnificent one, and one that reflects a great deal of credit on the various fruitgrowing centres of the Dominion."

Agreement on the adoption of standard cases was reached at the Federation's annual conference which was held at Auckland in 1918, at the time of the apple show. Growers had recognised for some time that, along with standard grades for their fruit, they must have standard cases. Cases of all shapes and sizes were to be seen in New Zealand markets, and it was obvious that greater uniformity was called for. Officers of the Horticulture Division, Department of Agriculture, explained to growers the efforts that were being made to combat fruit diseases, and Mr T. W. Kirk, Director of the division, mentioned that the department had decided to offer a small bonus to growers in whose orchards experiments on brown rot were carried out, in addition to the payment of labour. The annual report noted that useful information had been collected on the cold storage of fruit and urged that further cool-storage accommodation be provided on a sufficient scale to meet the demand in each of the main distributing cities. Mr J. Longton, of Canterbury, was elected president of the Federation.

The planting boom slackened off in 1917 and 1918 but picked up again after the war, and the number of growers continued to increase. In 1918 New Zealand's area in orchard totalled more than 50,000 acres, and the number of registered orchardists was



Cherry picking was obviously congenial employment for women in the 1920s—
and, as today, the ripe fruit had to be protected from birds.



Export fruit used to be inspected on the open wharf at Nelson, and when fruit was rejected the grower had to trip to the city and do his best to dispose of it. When fruit was downgraded, growers did their own relabelling on the wharf.

the Minister of Agriculture, Mr W. Nosworthy. "Growers then place their fruit on other markets which in turn suffer from a glut, while the prices elsewhere go up and consumers have to pay above the ordinary value for their fruit. It would be better for the grower and the consumer if regular prices could rule on all markets." There would, Mr Longton said, have to be a central board of control. It was decided that the Government should be asked again to guarantee growers one penny per pound on pip fruit exported the following year, with the varieties and conditions approved by the department. This guarantee, it was pointed out, would put the export of fruit on a proper basis.

Suggestions on what might be done to improve the conditions of the fruitgrowing industry were invited from prominent people in the industry. Mr T. W. Attwood's suggestions were brief and to the point: "Extended co-operative organisation, standardised product at fixed price through one co-op. selling agency each district. Under one Dominion control."

The principal business confronting the Federation executive in 1920 was to arrange for the export and local distribution of fruit. Other important matters were to secure more orchard instructors, to consider the desirability of an advertising campaign, to arrange for sugar for preserving and jam-making (sugar was high-priced and in short supply), and to extend the period of full duty on imported fruit. As many young men had recently taken up orchards and the industry generally was in need of further assistance, it was decided to ask the Department of Agriculture urgently to provide more orchard instructors.

A deputation from Nelson, which was then second only to Auckland province in its orchard acreage and number of fruit-growers, urged the Federation to assist in organising the Nelson growers. It asked that the Nelson Provincial Fruitgrowers' Council, which had been formed as a responsible body to represent the growers and associations in that district, should be helped with funds from the Federation. The directors authorised the payment of £300 to the council on condition that it acted as district agent of the Federation.

Experiments were made with forms of air storage for districts where more expensive mechanically-operated cool storage was not available. In the shade and cool moisture of the natural bush at Levin apples were stored experimentally over several seasons. Sturmers, in crates on posts above the ground, were protected from rats by benzine tins on top of posts. Straw and hay were scattered in layers to ease the pressure of the weight of fruit. One case of

fruit was sent to town each month from the end of June to the end of October. The experiment showed that this kind of storage was practicable for suitable varieties and would help to equalise supplies. Cold storage was desirable for other varieties, however, and for keeping apples for a longer period than was practicable with bush storage.

Growers and those concerned with the administration of the industry not only had their organisational and marketing problems to contend with. There was also a major problem of disease. Fireblight had a very large hold in the Auckland district, and in March 1921 the Auckland Fireblight Committee and the Federation executive discussed with the Minister of Agriculture and departmental officers measures that could be taken to check and eradicate the dreaded disease. It was agreed that the existence of hawthorn hedges, which are host plants for the disease, increased the danger of fireblight to such an extent as to make it practically impossible to eradicate the disease until the hawthorn had been eradicated also. Mr J. A. Young, M.P. for Waikato, championed the interests of the dairymen of his district who used high hawthorn hedges for shelter, and he objected to any measure for cutting out hawthorn. It was finally decided that an amendment to the Noxious Weeds Act should be prepared by the department to give local bodies the power to deal with hawthorn in their respective areas. This amendment was passed by Parliament in a special short session that same month.

At the Federation conference in 1921 the president, Mr Longton, was able to report that the Federation had had a greater measure of success than any of its most ardent supporters could ever have expected in so short a period. "A large majority of the commercial growers throughout the Dominion are actively supporting the Federation through its affiliated associations and co-operatives, and every grower, whether a member of an affiliated body or not, is reaping the benefits of the organisation," he said. Mr Longton was succeeded as president of the Federation by Mr T. W. Attwood.

During a visit to England in 1921 Mr G. Stratford, of the Horticulture Division of the Department of Agriculture, undertook to study the conditions under which New Zealand fruit was received at the other end. On his return he expressed the opinion that London was the market for New Zealand apples as shipping went there direct and the trade was more dependable there. He recommended that the Government should have a representative in London during the following two seasons to watch the apple export business there.

The Orchard Tax Act, which was enacted originally for five years, was due to expire at the end of 1921, but every fruitgrowing district asked for its continuance. It was renewed by Parliament for a further five years. The guarantee of one penny per pound on fruit exported was also renewed.

An important executive change took place in 1922 with the appointment of Mr H. E. Napier as secretary of the Federation. The office was now transferred from Panama Street to the Dominion Farmers' Institute building but was still one room. The following year Mr Attwood was away for some months on a visit to South America and Britain, and during his absence Mr A. M. Robertson, of Hawke's Bay, acted as president. On his return Mr Attwood visited the main fruitgrowing districts and gave addresses on his observations in England. The directors decided that Mr Attwood should visit England again during the 1924 season to arrange a New Zealand fruit exhibit at the British Empire Exhibition at Wembley and also to watch and report on the New Zealand fruit shipments arriving during the season. New Zealand fruit received a good advertisement from the exhibit and it was repeated the following season. Mr Attwood attended again to both the exhibit and the New Zealand fruit arriving in London. Mr Napier recalls some forty years later that Mr Attwood was a very good president and an excellent speaker. "In fact, in appearance he resembled Abraham Lincoln and his principles were as high," he says.

After the Federation's 1923 conference an Export Advisory Committee was set up at the request of the Government. Its members were Colonel C. Gray (Nelson), J. Allan (Nelson), T. C. Brash (Wellington), A. M. Robertson (Hawke's Bay) and H. Turner (Otago). This committee was to act in an advisory capacity to the Government on the export guarantee and also to the Federation in connection with shipments of fruit. Largely as a result of the efforts of Colonel Gray and Mr Allan, the Government decided to reinstate the one penny per pound guarantee for the 1924 export season, for a maximum of 250,000 cases.

Colonel Gray was an indefatigable worker also in his endeavours to improve the local marketing of fruit. His own experience clearly brought home to him the need for such improvement. An ex-Imperial Army officer, he had come to New Zealand to grow fruit and secured an orchard in the Nelson district. He had decided it was his job to concentrate on growing good-quality fruit and leave the marketing to an experienced firm. It seemed an ideal arrangement. But at the end of the season it was found that

market returns were not sufficient to pay for storage, transport charges and the agent's selling commission. The colonel concluded that there was something radically wrong with New Zealand's fruit-marketing methods. In association with Mr Allan, he then explored ways and means of organising local marketing.

The Federation's efforts to get controlled marketing of fruit led to the passing of a Fruit Control Bill by Parliament in 1924. Under the Fruit Control Act the New Zealand Fruit Export Control Board was set up with power of control of all fruit intended for export. Provision was made also for local boards to have control over fruit intended for local consumption. Neither part of the Act was to come into operation, however, until approved by the producers. Growers were given the freedom to vote in favour of or against accepting the scheme, but once a province voted in favour of it, then the scheme became mandatory on all growers within that province. Any provincial district could exclude itself from participating if 70 per cent of its growers signified that they wished to do so. Polls taken in December 1924 resulted in all provinces accepting the export provisions except Otago which had just entered the export trade and had already made its own export arrangements. The proposal for the provincial control of fruit intended for sale in New Zealand was turned down in each provincial district. A voluntary local control board was established in the Nelson district for the handling of the 1924-25 crop but the scheme was not a success. The Fruit Export Control Board comprised six members, of whom four were growers' representatives and two were Government representatives. Its original members were Messrs H. S. Izard, A. M. Robertson, T. C. Brash, H. E. Stephens, E. H. Williams and C. Gray.

Mr T. C. Brash was elected president of the Federation in 1925 and was destined to continue as head of the fruitgrowers' national organisation for a record term.

The fruit industry was now taking its place among the important primary industries of the Dominion and through the export of fruit it was contributing to the general welfare of the country.

The Federation's trading account in 1925 showed a big increase in turnover, mainly on account of imported cases, but at the same time a satisfactory increase had taken place in other lines. Owing to the growth of its business in both the export and trading fields, the Federation moved into new office premises in Young's Buildings, facing Post Office Square, Wellington. It continued to do the shipping work in connection with export for the Export



Success and failure. Mr M. Jackson's orchard in the Manuherikia Valley, Central Otago, is pictured above as it is today and as it was in 1917. At Fruitlands, south of Alexandra, however, severe spring frosts proved too much for some 40,000 fruit trees and, as the pictures below show, the orchards reverted to farm land.





Lord Bledisloe, Governor-General of New Zealand from 1930 to 1935 and himself a former commercial fruit-grower, took a great interest in New Zealand's fruit industry. He is seen (on left) with Lady Bledisloe and Mr A. McKee snr. who was the first person to see great fruitgrowing possibilities in the Moutere hills and was responsible for opening up the Tasman area for apple orchards.

The New Zealand Fruitgrowers' Federation branch office at Hastings was damaged in the earthquake of 3 February 1931, but the staff escaped injury by standing inside the centre porch . . . The following year the Ottawa Conference was an event of great importance, and representing the fruit industry in the New Zealand trade delegation was Mr H. E. Napier, the Federation's general manager, seen on the right of the group below. The others are, from left, Messrs W. Goodfellow (dairy produce), F. O. Hamilton (hops and tobacco), D. Jones (meat) and G. W. Reid (manufacturers).



Board. The increasing activity fully taxed the Federation's facilities, and in 1926 the directors found it necessary to open branch offices at Auckland, Nelson and Hastings.

Sterling help was given to the industry by Mr J. A. Campbell, Director of the Horticulture Division. Known as "Big Jim" to growers and directors, he was a real diplomat and contributed much to getting the guarantee continued and the Fruit Export Control Board legislation passed. Mr Campbell figured largely in another important event about this time. In the early days all export fruit was shipped under the growers' brand, with little reference to New Zealand. Some people felt that it should all be shipped under a universal New Zealand label. The Federation agreed and it was decided to hold a competition among New Zealand artists for a suitable design. The tenu-guinea prize was won by a Dunedin firm, but to their chagrin the design was changed to give it more colour and the printing job went to a Wellington firm. "It was one of the things not done, and I suppose I should take the blame, even though it was only ignorance," says Mr Napier. The next problem was to get the co-operation of growers and that was where Mr Campbell came in. He and Mr Napier stumped New Zealand and attended twenty-six meetings in all sorts of small places, often burning the midnight oil.

"Mind you, Jim Campbell used a little blackmail by hinting that it might be a condition of the Government guarantee being renewed," recalls Mr Napier. Anyway the message got across, and the label that was introduced is the same label as is used today and is known everywhere.

During the 1926 export season the Federation directors recognised the need of some local organisation to advise those supervising the industry of the requirements and the opinions of growers in their respective districts. It was decided to set up an advisory committee in those districts requiring one, and committees were formed in Nelson, Hawke's Bay and Auckland. These committees, which comprised the Federation director for the province, as chairman, the producers' representative on the Export Board, and three members elected by the province, were found to be of great value in making the necessary export arrangements and in putting forward the views of the province on matters affecting the industry.

Failure by sawmillers to supply cases as promised had for some years been creating a major problem for fruitgrowers in some districts, notably Nelson. Over several seasons considerable

quantities of apples and pears had to be picked and placed in pits in many orchards, and most of this fruit became a total loss before cases were obtainable. Experiences of this sort resulted in a number of fruitgrowers leaving their orchards. The Federation relieved the position by importing a considerable quantity of Canadian and Scandinavian cases, which also represented an appreciable saving to growers.

The question of the renewal of the orchard tax was considered at the Federation's 1926 and 1927 conferences and it was unanimously agreed that the Government should be asked to renew the Act which had been the means of creating an effective national organisation. Instead of renewing the old Act, however, the Government decided to bring down a new Act. The Bill was introduced and passed in 1927. By fixing a minimum tax of 5s, payable by all owners of an orchard of 120 or more trees, it eliminated many of the previous small taxpayers. As the area increased, the previous sliding scale of tax applied. An addition to the Act empowered provincial districts to set up fireblight committees with the power to make a levy of up to 5s. an acre for the purpose of creating a fund to protect the district from that disease.

New Zealand fruitgrowers now wished to have their own specialised journal and the Federation directors decided that the industry had become sufficiently important to warrant a monthly publication. Previously, official news and information of interest to orchardists had been published in *The New Zealand Farmer* and then *The Fruitgrower* and *The Smallholder*, but only a small proportion of the space in those journals was available for the fruit industry as represented by the Federation. The first issue of *The Orchardist of New Zealand* appeared in February 1928. The new journal, issued free to all orchard tax payers, was to be devoted exclusively to the advancement of orchardists' interests and to enlightening them on the most modern practices in production and marketing. Its first editor was Mr C. E. Wheeler.

A major milestone in the marketing of New Zealand fruit was reached in 1928 when more than one million cases were exported for the first time in one season. Such an achievement had been predicted a few years earlier by Mr Attwood on his return from England, but his statement at that time was regarded as pleasant optimism. An appropriate celebration marked the loading of the millionth case on the *Tamaroa* on 7 June. The case, of Extra Fancy Sturmer apples, had been prepared for the occasion by Mr W. Benzies, who was then the Export Board's officer in charge of shipping and is today a Government member of the New Zealand

Apple and Pear Marketing Board. At a luncheon to mark the occasion the Minister of Agriculture, Mr O. J. Hawken, spoke with enthusiasm about the future of the fruit industry. At the same time he showed a keen appreciation of the difficulties of growers in their very fine margin between expenses and realisations and said that this factor alone fully justified the Government's aid through the export guarantee. "The Government realises," he said, "that the fruitgrower is one of the most concentrated users of land in the world. He knocks out a pretty good living where no one else can do the same." The millionth case was presented to the Prince of Wales by Mr H. E. Stephens, the Export Board's London manager.

In contrast to its marketing by the million, the Export Board also operated a fruit gift scheme under which, for the payment of one pound, any New Zealander could have a case of choice New Zealand apples delivered to the door of a friend in the United Kingdom. Requests and remittances were received by every mail and among them were orders for delivery on the Continent. This scheme, which had great advertising value, was later administered by the Federation.

The Federation in 1928 took over the trading department of the Hawke's Bay Fruitgrowers' Association and later the trading departments of the other associations. This move contributed further to the co-operation between Federation and associations and enabled the latter to concentrate their efforts on other matters of importance and benefit to their members.

Some significance—though its implications were not fully appreciated at the time—attached to an incident at a fruit auction in Liverpool in 1930. A large parcel of New Zealand apples was scheduled for sale. The Liverpool auction was a closed auction—in other words, only members were allowed to bid and to be a member they had to be big buyers. The tiered seats in front of the rostrum held about 400 buyers. The market was sticky and Sturmers were bringing an average price of about 10s 6d a case. Each auctioneer had about twenty minutes. The third auctioneer had made up his mind to lift the price. He was a big man of about fifteen stone and wore a red bandana scarf round his neck. Before five minutes had passed he was perspiring from every pore. He tried for a starting bid of 11s. but got nowhere. However he kept on. And then one of the 400 buyers started to whistle the hymn, "Lead me not into temptation." That was enough for the rest. The whole room took it up and it was all most impressive. The auctioneer did not falter.

He turned over the pages of his catalogue and at the top of his voice shouted Lot 278. In a few seconds there were bids from all over the room starting at 18s and the lot was finally knocked down at 23s. It was a line of Granny Smith. Obviously the market was prepared to pay almost twice as much for something it wanted. But New Zealand was not quick to capitalise on the obvious coming popularity of Grannies. Producing the right varieties in quantity, which means anticipating the popular varieties, is still important today.

3

THROUGH DEPRESSION AND WAR

NEW ZEALAND FRUITGROWERS were urged to "cultivate optimism" with the same zeal as they cultivated their fruit by one of this country's most revered Governors-General, Lord Bledisloe, when he opened the Federation's conference in 1930. Himself an old commercial fruitgrower on an extensive scale in England and also a former chairman of the National Fruit Research Station, Lord Bledisloe said there were factors that should inspire New Zealand fruitgrowers with considerable confidence. First, the per capita consumption and demand for fruit were steadily increasing, with full encouragement from the medical profession. Secondly, there was the ever-increasing scientific knowledge arising from research work directed toward cool storage, and this was especially important for the more-distant sources of supply of fruit, such as New Zealand. Thirdly—and he considered this should be the main factor in inspiring confidence—there was New Zealand's "incomparable climate."

Lord Bledisloe emphasised, however, that it was imperative to maintain a uniform standard of quality and soundness, "even at the cost of some temporary inconvenience or pecuniary disadvantage," which would "uphold the reputation and credit of New Zealand fruit unchallenged and unchallengeable amid its less-favoured competitors on the British and other markets." He told the Minister of Agriculture, Mr A. J. Murdoch, that if it would be in any way helpful in encouraging the competition, grading, packing and preserving of high-grade fruit for British markets, he would be very pleased to present a silver challenge cup, to be competed for in 1931 and successive years at the Imperial Fruit Show in such competition and subject to such conditions as the Fruit Export Control Board might determine. The offer was gratefully accepted, and the trophy was called the Bledisloe Cup. Its first winner was Mr H. E. Stephens, of Stoke,

Nelson, with the best exhibit of Jonathan apples in the Southern Hemisphere.

The acreage in orchard was reduced by almost one-half in the period from 1918 to 1930. The New Zealand total in 1930 was 27,000 acres. There were 6,050 registered orchards, and 3,000 were of one acre or greater area.

The business of the Federation had grown so rapidly that by 1930 the constitution, as drafted in 1916 and later amended as necessity arose, was too restricted to allow full scope for the organisation. An amended constitution was therefore drafted and a complete set of new rules was adopted almost in its entirety by the 1930 conference. These rules, while retaining the foundation principles of the old constitution, enabled the Federation to extend its activities to take in all branches of the industry. The amended constitution gave the directors power to allocate up to 60 per cent of the net profits to purchasers. As the percentage to be credited amounted to $1\frac{1}{2}$ per cent on turnover, the rebate was substantial, especially as it applied to all goods purchased from the Federation, including cases upon which the margin of profit was necessarily low. The directors felt sure that when growers fully appreciated that they were directly benefiting by participation in the net profits earned from the business they put through the Federation, even greater support would be given to the trading department.

The Government recognised the great importance of research to the fruit industry by deciding to contribute to the capital cost and to the maintenance of a fruit research orchard in the Nelson district. Negotiations to secure the orchard, at Appleby, were only brought to finality by a donation from the Fruit Export Control Board and by the unceasing efforts of Mr H. Atmore, M.P. for Nelson.

More than one million fruit cases were imported in 1930, but case imports the following year were comparatively light. There had earlier been a preference to purchase local boxes, but until 1931 it was found impossible to get a suitable New Zealand case at a competitive price. The New Zealand miller now undertook to provide a case that was equal in appearance to the imported case and was thoroughly dry. The fruit industry considered it was taking a certain amount of risk in placing an order for 650,000 boxes in the Nelson district and 150,000 boxes in the Hastings district, but the sawmillers were anxious to handle the business and growers felt it was up to them to try to prevent unemployment.

The horse had up till now played a big part in the industry and was the orchardist's treasured beast of burden. It would pull a single furrow plough and then harrows for cultivation, a sledge to haul the fruit into the shed and, for spraying, a sledge on which a barrel of mixed spray was placed with a hand pump attached. But from 1931 on there was a swing to the tractor. This made possible the planting up of the horse paddock, which represented a sizeable addition to the actual orchard area. Though horses have long since disappeared from New Zealand orchards, occasional references to the "horse paddock" can still be heard on many orchards.

The Government guarantee for export fruit was extended in 1931 for five years. Originally one penny per pound, the guarantee was now 11s a bushel case, which worked out at less than 4d per pound for the grower. The fact that a guarantee of 11s brought such a small sum to the grower indicates the big difference between the marketing of fruit and the marketing of almost any other produce. With fruit, marketing costs are extremely high. The cost of preparation of the fruit, and all the transport and insurance charges have to be met before the fruit is sold, and few growers could meet these charges from their own resources. This is where the guarantee was so important. On the strength of the guarantee the Bank of New Zealand was able to advance the required sum.

Fruitgrowers were feeling the effects of the depression less than any other class of primary producer, the Federation's 1931 conference was told by its president, Mr Brash. "The prices of fruit overseas have not fallen to the same extent as the prices of other foodstuffs," he said. "New Zealand's fruit export organisation is the admiration of all other fruit-producing countries of the Empire."

It was a quite different story, however, with the local marketing of fruit, which was in a very bad and disorganised condition. In an endeavour to improve local marketing the Federation introduced a "Dominion Mark" campaign for the 1931-32 season. This scheme emphasised the need for better production in the orchard and for a greater percentage of quality fruit, packed to definite grading standards. It embraced cherries, apricots, peaches, nectarines, apples, pears, plums and lemons and was supported by the first comprehensive advertising campaign carried out for the fruit industry. Unfortunately market conditions throughout New Zealand had never been worse in

the history of the industry. Prices for some fruit were 50 per cent lower than in previous years and brokers experienced difficulty in disposing of daily supplies.

Late in 1931 Mr H. Turner, of Otago, was chosen from more than 300 applicants to fill the position of permanent representative of the New Zealand Fruit Export Control Board in the United Kingdom. He had been a director of the Federation since 1924 and had pioneered Otago's fruit export.

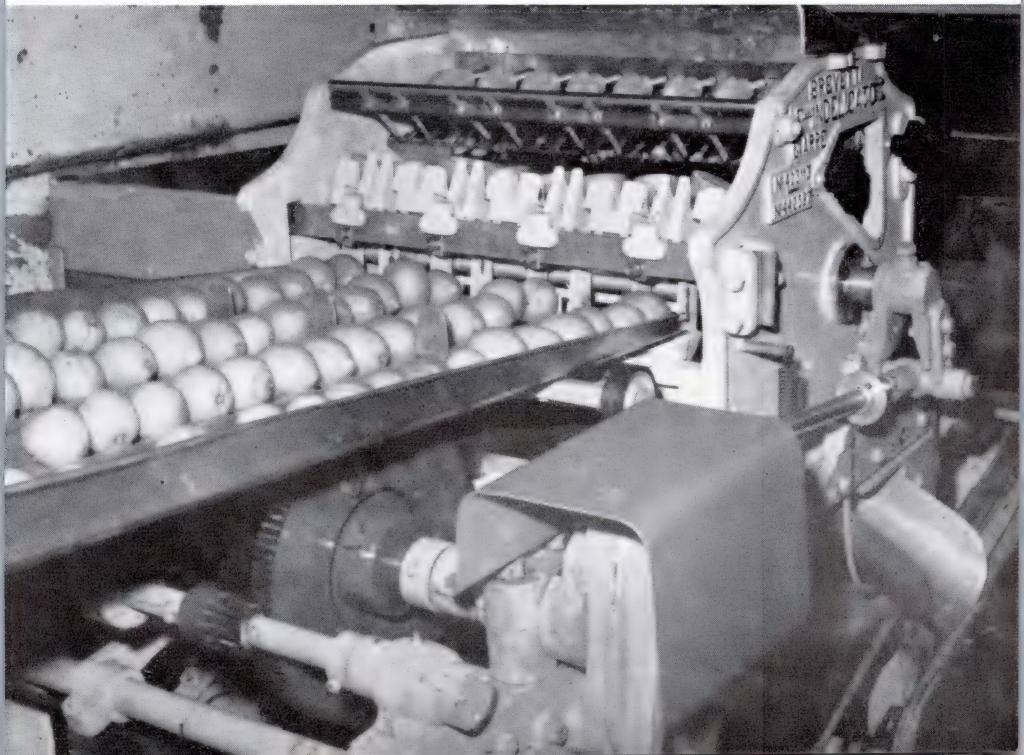
With the Government guarantee on exported fruit now available only to those provinces under the Export Board, Otago expressed a desire to come under its control. There was no provision in the Fruit Control Act for a province which had voted itself out to get back, but an amendment to the Act in 1932 made this possible. Otago took appropriate action in 1937 to be able to market its fruit under the Export Board.

The Ottawa Conference of 1932 was of great importance to fruitgrowers and all other primary producers in New Zealand. The Federation directorate joined with the Export Board in arranging for the fruit industry to be represented. Mr H. E. Napier, manager of the Federation, attended the conference as an adviser to the New Zealand political delegation and was associated with all the negotiations that affected the fruit industry. Preference was granted to Empire fruit interests as a result of the conference. The Rt. Hon. J. G. Coates, who led the New Zealand delegation, later outlined its work to the Federation conference. Team work in the preparation of the case during the voyage to Ottawa, he said, had largely accounted for the success attained. A change in the fruit tariff from an ad valorem to a specific basis meant that the duty would fall especially heavily on cheap, low-grade fruit and would have the effect of guarding against dumped apples.

An embargo against Australian fruit entering New Zealand was imposed in December 1932. The Minister of Customs, Mr W. Downie Stewart, said that if the Australian Government could see its way at any time to remove the embargo on New Zealand fruit and plants, the New Zealand Government would be glad to consider the removal of the embargo that had been imposed on the Australian products. It was early in 1920 that Australia had prohibited the entry of all New Zealand fruits into that country. This was followed by similar action by the United States of America. Australia's action was taken because of fireblight, a disease which had been introduced into New



Sweet oranges were first grown at Kerikeri, Northland, in the days of the early missionaries, and the district today produces more than half of the New Zealand-grown oranges. In the orange orchard pictured above, picking is in progress. Below, lemons for by-products are seen passing through a juicing machine at the Citrus Marketing Authority's Tauranga packing house.





Tree tomatoes, pictured being harvested on a Kerikeri orchard, are one of two fruits cultivated on a significant commercial scale only in New Zealand.

Chinese gooseberries share that distinction, and New Zealand now has a sizeable overseas trade in this fruit. A gift of Chinese gooseberries was attractively packed and presented to the Queen Mother during her 1966 visit to New Zealand.



Zealand from America, while America's action was based on Mediterranean fruit fly, a disease that existed in Australia but not in New Zealand. Consequently, New Zealand was penalised and her outward trade in fruit to Australia and America was debarred on account of a disease she had as well as a disease she might get, while the inward trade in fruit from both countries was carried on throughout the period without interruption. America made it clear that she would consider the matter favourably only if New Zealand prohibited the entry of fruit from countries in which fruit fly was known to exist. The embargo was accordingly imposed on imports of fruit from Australia, and the United States lifted her embargo on New Zealand fruit.

The marketing in the United Kingdom of the 1933 crop was conducted through the firm of Messrs J. & H. Goodwin, Manchester, who had branch and associated houses in all those marketing centres which had been used in the past by the Export Board. This firm offered a guaranteed minimum price for all classes, grades and varieties of apples and pears at a reasonable rate of commission and with a provision that any surplus realised above the guaranteed price would be given to the grower. The marketing through one organisation of all fruit despatched to the United Kingdom, it was considered, would tend toward an even distribution of fruit throughout the whole of the territory, without the overlapping which had at times occurred in the past. Growers in Otago, not previously under the regime of the Export Board, were able to take advantage of the change. For the 1934 season the Export Board decided to revert to a system of allowing the grower of fruit sold in London to choose his selling broker from an approved panel. In addition, provision was made for the Board to undertake the distribution of fruit on account of any grower. The Board handled the distribution and made all selling arrangements for fruit sold outside the London market.

The Government's action in 1933 in raising the exchange rate to £125 N.Z. for £100 London, in the words of the Federation directors' annual report, "practically saved the industry from bankruptcy. The net return received by the grower for the fruit after all packing costs, transport and selling charges have been paid is in all conscience small enough, but it is due to the exchange rate that he gets anything at all for his export."

Early in 1934 the Export Board decided to set up its own head office in Wellington to carry out its executive work and

arrange all shipping details. When the Board had assumed administrative control of the bulk of New Zealand's export fruit in 1925 the secretaryship was held by the Federation's general manager, Mr Napier, but with the continued growth of the export trade, and with it the activities of the Federation, some relief was necessary. The Federation made its shipping supervisor, Mr W. Benzies, available to the Board.

The export for the first time of more than one million cases from Nelson was a highlight of the 1934 season. The final figures showed that 1,108,570 cases of apples and pears had been submitted and passed for export. The millionth case was specially prepared for presentation to Lord Rutherford. Opinion was unanimous that the selection of the recipient was most fitting, as science played a very important part in fruit culture and Lord Rutherford was a native of Nelson. To celebrate the shipment of the millionth case a function was held in a wharf shed at Nelson and was attended by a large gathering. The toasts were honoured with a product of the apple—cider. The special case was presented to Lord Rutherford by the New Zealand High Commissioner in London, Sir James Parr.

After twelve years' service to the Federation as secretary and general manager Mr Napier resigned in 1934. He had seen the growth of the organisation from comparatively small beginnings to a head office and six branches and had been intimately associated with the development of the trading department and the extension of the export trade. Mr Napier was succeeded as general manager by Mr A. Osborne who had joined the Federation as a clerk in 1924 and had been appointed accountant two years later.

A resolution passed at the Federation's 1934 conference asked the Government to increase the orchard tax to provide funds for research work, and the Act was amended accordingly. This resulted in about £1,200 being made available annually for research.

Praise came the way of the Federation at the 1935 conference, notwithstanding the fact that local marketing of fruit still left much to be desired. The Minister of Finance, Mr Coates, said that the co-operative effort had brought into existence an organisation for both internal and external purposes that would compare more than favourably with that existing in any part of the fruitgrowing world. He also praised the financial management of the Federation: "I might say that its credit

stands extremely well with its bankers, so much so that on many occasions overdrafts have been approved amounting to ten times the amount of its cash deposits." Mr Coates pointed out also that the Federation, through its trading operations, had not attempted seriously to cut prices in competition with private firms, but had rather aimed at checking any unnecessary upward tendency in prices generally, and had in this way placed the grower in a position to secure his goods at reasonable cost, either directly through the organisation itself or from private firms. Mr Keith Holyoake, then M.P. for Motueka and today Prime Minister of New Zealand, told the conference that fruitgrowing was probably the best-organised industry in the Dominion. Mr Holyoake was himself an orchardist at Riwaka and was very familiar with the achievements and the problems of the industry.

The Federation did everything possible under the Dominion Mark scheme to establish standardised fruit on the local market, but its endeavours in this direction failed. The Dominion Mark department closed down early in 1936, having failed because it did not receive the support of enough orchardists. An effort continued to be made to maintain a high standard of fruit on the local market, however, and many growers who had supported the scheme kept on using the Dominion Mark label.

Under the new Labour Government, legislation was passed in 1936 to increase wages, including those paid to orchard workers. One effect of this was to increase the demand for orchard machinery, as fruitgrowers had to keep costs down as much as they possibly could. Stationary spraying outfits and other mechanised equipment helped them to keep labour costs down to a minimum. There was an increased demand also for a new screw-type grader which had been invented by Mr E. H. T. Bensemann, of Motueka. A former orchardist, Mr Bensemann later turned out also a case-nailing machine which became popular as a further labour-saving device for orchardists. With the labour aspect increasingly prominent, the New Zealand Fruitgrowers' Industrial Union of Employers was formed, with branches in the several fruitgrowing areas.

The Government's action in increasing the export guarantee and in setting aside £40,000 for the subsidising of realisations for fruit sold on the local market was a recognition of the increased cost placed upon the industry.

The Federation was instrumental in getting a scheme for the certification of plant therapeutants introduced, at a time

when spraying for pest and disease control was becoming increasingly important in the fruitgrowing industry. The scheme enabled a manufacturer or re-seller to submit his product for analysis and testing and, if it was found to be effective for the purpose for which it was offered for sale, a warrant of certification was issued. Although the scheme was voluntary and uncertified chemicals could still be offered for sale in New Zealand, the growers' confidence in its reliability became such that unless a spray chemical was certified, its sales potential was limited. This voluntary scheme was later replaced by a system of compulsory registration under the Agricultural Chemicals Act 1959.

Radical changes in the organisation and control of the horticultural industries of New Zealand were recommended in 1937 by a committee which had been appointed by the Government to investigate the marketing of fruit and vegetables in New Zealand. The committee, whose report came to be known as the Coleman Report after its chairman, recommended the control of the marketing of all horticultural commodities by the Primary Products Marketing Department, the appointment of a Director of Fruit Marketing, and the establishment of district marketing authorities to direct and control the marketing of any particular commodity. Its recommendations provided also for the grading of apples and pears. The committee stated that in its opinion "the producer was receiving too little and the consumer was paying too much." In other words, the wholesale and retail trade received too great a proportion of the consumer's purchase price.

Government intervention in the industry had become a subject of paramount interest to fruitgrowers. The Export Board's conference in August 1937 was told by the Minister of Agriculture, Mr W. Lee Martin, that Cabinet had decided to put the major recommendations of the Coleman Report into effect by having the primary products marketing legislation amended, and it had also arranged for the fruit industry to be supervised by the Director of Internal Marketing, Mr F. R. Picot. In a series of meetings with growers Mr Picot said that standardisation of the product to be marketed was a necessary corollary to any sound scheme of distribution, and for this reason steps had been taken to introduce compulsory grading of apples and pears from the beginning of 1938. He also stressed that it was better to adopt a simple system of standards or grades and strongly advocated that for the local market the number of grades should be



Activities at the Fruit Research Division, Auckland, range over a wide field. They include assessing the chemical constituents of processing peaches (above) and the introduction of new varieties (below). This new peach has come through quarantine and is proving itself worthy of trial on a commercial scale.



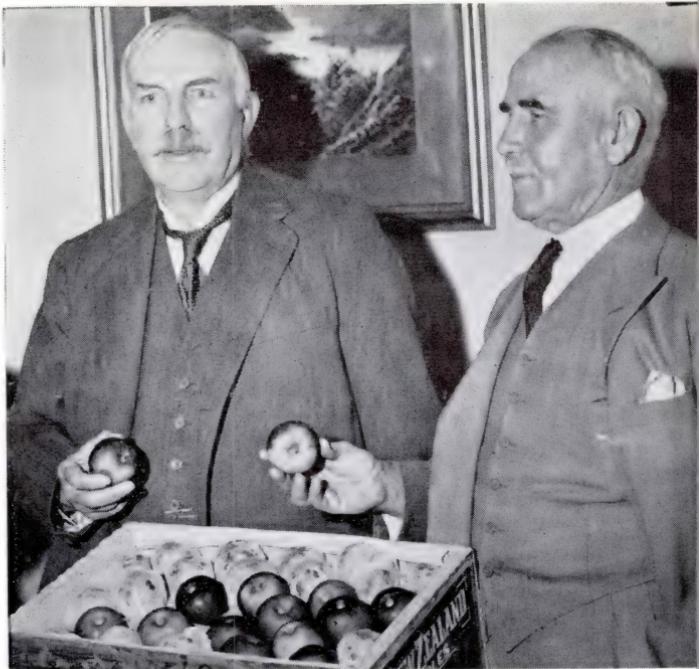


A seedling which has been successfully grafted with the tip of a shoot produced under high temperature is planted out. This technique has made it possible to eliminate many viruses from the important apple varieties.

The tip of an apple shoot which was produced in a hot cabinet is grafted to a virus-free seedling.



Nelson's first millionth case of fruit to be exported in a season was presented to Lord Rutherford of Nelson by the New Zealand High Commissioner, Sir James Parr (on right), in London in July 1934.



Members of the New Zealand Fruit Export Control Board in 1934. From left, standing, Messrs A. M. Robertson, R. Paynter, T. C. Brash, D. Haining; seated, J. A. Campbell (Director of the Horticulture Division), H. E. Stephens, W. Benzies (secretary) and H. S. Izard.



Today Prime Minister of New Zealand, Mr Keith Holyoake was in his younger days, and while M.P. for Motueka, an orchardist at Riwaka. Later he had a further close link with the fruit industry as Minister of Agriculture.

More than a million pounds worth of gold was taken out of Conroy's Gully, near Alexandra, between 1862 and 1940. One five-acre section which today is part of Mr G. D. Taylor's orchard (pictured below) yielded enough gold for 300 Chinese to retire to China. Mr Taylor's father, Mr A. Taylor, on right, married a daughter of Mr and Mrs A. Dawson who planted the first fruit trees in Conroy's. Aged eighty-seven, he is still an active orchardist.



reduced to an absolute minimum, but in fact six grades were gazetted. It was also necessary, under such a system of standardisation, to eliminate as far as possible a large proportion of low-grade fruit which was being placed on the market and thus depressing it, and he could see no better way of tackling this problem than by utilising such fruit in the manufacture of fruit juices and other by-products.

The Government's guarantee of 4s 2d a case on apples and pears was in operation in 1938 and the crop marketed that year totalled approximately 1,400,000 cases. This quantity during the height of the harvesting season caused a glut in all the main markets. Prices were extremely low. The fruiterer knew the fruit was cheap and he knew there were ample stocks. He also knew there was plenty more fruit coming from the orchards, but he did not know how much lower prices would fall. To safeguard against loss, the fruiterer bought only according to his daily needs. He could not confidently buy a week's supply at a time, and with no buyer confidence the markets stagnated. Experience that season indicated clearly that the New Zealand auction system was not a complete or satisfactory answer to glut conditions. The grower received his guaranteed price, but it cost the country about £80,000.

Among more than 200 remits at the Federation's 1938 conference was the question of whether or not the Government was to be asked to take over the handling of fruit on the local market. It was decided to ask the Government to organise the local market with the co-operation of growers. Opening that conference, the Minister of Marketing, Mr W. (now Sir Walter) Nash, pointed out the very serious difficulties in the way of gaining an adequate return on the local market. Although the return to the grower had not been satisfactory, he said, he would like to remind the conference that on the other side of the picture advantages had been gained. The people had had more apples and surplus apples had been eaten. This was a move in the right direction, and he hoped it would be followed by a return to the grower that was more commensurate with the service he was rendering to the community. The whole question, Mr Nash said, was tied up in the need for higher income. The Federation president, Mr Brash, said that, while the local market was still in an unsatisfactory condition, standardisation had been a major step in the right direction and would be followed by further progress.

The Federation's general manager, Mr Osborne, visited the United States and the United Kingdom in 1938 and on his return expressed the opinion that New Zealand was right up to date in the production of fruit but America was far ahead in packing and transport. Efficient field inspection, central packing sheds and adequate cool-storage accommodation accounted for the Americans' advance in packing, while fast ice-cooled trucks enabled produce to reach its destination in first-class condition.

The Minister of Marketing refused to continue the local market subsidy in 1939, although the wage rate remained the same as in 1938. Without the subsidy it was impossible for growers to meet their total commitments.

After the outbreak of war in 1939 New Zealand was faced with the prospect of having no European market for the export of apples and pears. All shipping space had to be used to the full in taking food requirements to the United Kingdom, and the United Kingdom Government said it must give preference to butter, cheese, meat and other primary products and could not make any arrangements for space for fruit.

The combined directorate of the Federation and the Export Board asked the Government to take full control of marketing and give to the producer the cost of production plus a fair standard of living. A large majority of growers in Nelson and Hawke's Bay wanted the Government to take over the marketing of fruit, though in other districts this was not the case. Generally, however, it was with considerable relief that the industry learned of the Government's offer to take the responsibility of marketing the whole apple and pear crop. The Director of Internal Marketing set up an organisation to sell the fruit. The staff of the Export Board was taken over by the Internal Marketing Division, and the Export Board remained in existence as an advisory committee to the division.

The announcement that the Government would take over the responsibility for marketing was made just before Christmas 1939, and there were only five weeks in which to organise on a Dominion basis for the handling of the season's fruit. War conditions and a 2,500,000-case crop almost at harvesting stage called for immediate action. With the disastrous glut conditions of 1938 still vividly in mind, those tackling the marketing of the 1940 crop understandably had misgivings about disposing of a further million cases. Eventually arrangements were made to export 600,000 cases, but this still left the domestic market with 400,000 more

than in 1938. It seemed an impossible task. Strenuous efforts were made to ensure a wide and equitable distribution of the fruit over all markets and to maintain a regular and continuous supply to each market. Most effective use was made of orchard storage and cool stores to spread delivery over the season. As a result, extreme glut conditions were avoided. Not only was the fruit disposed of, but good progress was made in bringing in compulsory standardisation and in distributing the fruit. No improvement was made in marketing methods, however. Prices were extremely low and the growers were again dependent upon Government subsidy. Indirect compensation of this kind was damaging to the industry and unsatisfactory to the public. Something had to be done about marketing.

Pure apple-juice was dispensed at a bar at the fruit-selling stand in the Industries Court of the Centennial Exhibition at Wellington in 1940 and was much appreciated by the general public. Its success hinted at the possibilities of large-scale production of apple juice as a way to utilise waste apples. Though there had been plenty of talk previously about such a by-product of the fruit industry, little had been done about it apart from the efforts of Mr P. G. Wolfe, of Auckland, whose high-class product, achieved without any financial assistance, was praised at the exhibition.

But there was a more immediate use for waste apples—as fodder for pigs. The Federation president, Mr Brash, asked the Government what work orchardists might undertake, in addition to their ordinary task, to assist the Empire during the war and was told that they should particularly assist in the production of pork and eggs. The annexation of Denmark by Germany had caused a shortage of a very necessary part of the average Englishman's breakfast, namely his bacon, and accordingly the New Zealand Government urged an increase in the number of pigs bred in this country. The Superintendent of the Pig Industry in New Zealand, Mr M. J. Scott, told orchardists that the food value of apples to pigs was high and equivalent to that of potatoes. The apples should, he said, be supplemented with meat meal. Many orchardists started raising pigs, though few regarded it as an economical proposition, as the value returned from pig meat amounted to about 9d a bushel.

There was no prospect of export of any of the 1941 fruit crop. The Government again undertook to purchase and market the crop. Brokers agreed not to sell below a minimum price, but unfortunately their individual operation promoted an intense competition to sell and this led to secret concessions to persuade buyers and gradually to the breakdown of the agreement.

The Internal Marketing Division launched a powerful "apple campaign" in an endeavour to educate the people of New Zealand to the health value and vitamin content of apples. The publicity included a radio campaign. An "apple song" was composed and an "apple play" was produced for radio; apple recipes were broadcast and a case of apples was the prize for radio quiz winners. Doctors, nurses, athletes and beauty specialists gave their opinions on the health value of apples. In addition, through the Department of Health, apples were provided for school children throughout the country. Altogether about 12,000 cases were despatched every week for the schools, the idea being to give every child an apple every day, as had been advocated for many years by the Federation. The advertising scheme aroused great interest among all sections of the public and, with the plentiful supply of apples at cheap prices, stimulated consumption to record heights. The full 1941 crop was absorbed by the public, which meant that, on the average, each person consumed 70 lbs, or 265 apples, during the year.

The achievement of the 1941 season was that the whole crop was consumed. To achieve this, however, the fruit was sold far below actual cost, and a loss of some £420,000 for the season was borne by the Consolidated Fund.

The Federation's head office was now located in the Huddart Parker Building in Wellington and for the only time in its history the annual conference was held there in 1941. It happened also to be the Federation's silver jubilee.

It seemed impossible to improve the New Zealand system of auction, and so consideration was given to eliminating auction selling. Small experiments were made cautiously in Taranaki and Auckland, and their success led to a changeover from auction to nominated prices in all markets in April 1942. Under the new system, prices were nominated for groups of varieties according to grade and size, and an assurance was given that these prices, for quality fruit, would remain constant from Monday to Friday. The prices were to be subject to review each week, but an endeavour was to be made to keep the price unchanged for two or three weeks. The new system eliminated cut-throat competition between brokers, gave retailers buying confidence and provided a uniform price throughout all markets, which stimulated country consumption. At first wholesale prices only were controlled, but with the advent of national stabilisation retail prices were directly related to the current wholesale prices.

The drain on manpower in World War II was probably felt

more severely by fruitgrowers than by any other primary industry. Growers had to rely heavily on girls and women for their harvesting, because of the acute shortage of male labour. The Army authorities greatly helped harvesting operations in the Nelson district by establishing camps at Mapua, Motueka and Richmond and making servicemen available as growers required them.

Case timber supplies would again have become a matter of considerable concern to Nelson growers but for a supplier's disregard of the authorities' instructions. The timber industry was, of course, classed as essential and there was some direction regarding timber supplies. A list of priorities was drawn up and supplied to sawmillers by the Government and on this list fruit cases were rated eighth. Mr L. E. H. Baigent, head of the Nelson timber firm of that name, objected to this as, being the traditional supplier of fruit cases to Nelson growers, he felt that his firm could not turn the growers down and leave them without apple boxes. He took the matter up with the appropriate authorities but was told that if he continued to supply fruit cases instead of more essential requirements his company would be prosecuted. However, the firm continued to supply cases and was not prosecuted. Mr Baigent felt that he was on fairly solid ground, as had any action been taken he was sure this would have been one occasion when every fruitgrower in Nelson was on the side of the case suppliers.

The Federation directors in 1943 decided to establish a fruit tree nursery at Levin to implement the work done by Dr G. H. Cunningham, Director of the Plant Diseases Division, and his officers in the production of rootstocks and certified trees. Dr Cunningham described the establishment of the nursery as a most progressive move as it was a definite step toward stabilisation of the fruitgrowing industry.

The industry was seriously concerned at the Government's action in imposing ceiling prices on stone fruit for the 1943-44 season and for at least the duration of the war. Many approaches were made to the Price Tribunal by a stone fruit sub-committee and by the Federation directors and management, and as a result of these discussions some adjustments were made and some increases in ceilings were granted to assist in recovering increased costs. Requests were made after the war to have the scheme abandoned, but it was not until November 1948 that ceiling prices on stone fruits were revoked.

A special fund of £25,000 was set aside by the Government in 1944 to assist unproductive orchards. It was to be applied to

those orchards which, with reasonable expenditure, could be made economic.

The Government indicated that it intended to give the industry a greater share in the control of marketing, and in place of the purchase scheme a Fruit Marketing Council, with four grower representatives, was set up. The council members were Messrs R. Fraser (Acting Director of the Internal Marketing Division), chairman, W. Benzies (I.M.D.), W. K. Dallas (Director of the Horticulture Division, Department of Agriculture), R. Eddy (president, New Zealand Workers' Union), A. B. Congdon (Auckland), A. C. W. Ward (Hawke's Bay), L. B. Robinson (Nelson) and J. Hainsworth (Otago). Later Mr H. R. Sampson (Canterbury) was elected as an additional grower representative, and, to maintain the balance, Mr F. B. Stephens, of the Prime Minister's Office, was appointed by the Government.

At the Federation's conference in 1945 there was a record number of 232 remits. Though fifty-eight of these were concerned with amendments to the Federation and the Fruit Marketing Council rules, the big number of remits indicated that many problems confronted the fruit industry in the post-war years. The industry had practically to start again from scratch as far as marketing was concerned, as its local market had been used to low, subsidised prices and its export market had not seen New Zealand fruit for years.

4

TOWARD BETTER TIMES

“OUR GREAT AIM should be to produce food,” said the Federation president, Mr Brash. “A hungry world cannot be a happy world and cannot progress, and every development of the present time indicates that in the future there must be greater security for all than there has been in the past.”

After long negotiations with the Federation, the Government agreed to increase the minimum guaranteed price on the 1946 fruit crop from 6s to 6s 4½d a case. The Federation directors had been trying for some time to get the Government to compensate growers for increased costs arising from proposed increased wages and other factors, such as transport and Internal Marketing Division charges. The employers were not inclined to pay the extra wages asked until some adjustment was made. Subsequently the Employers’ Union, after consulting with the New Zealand Workers’ Union, agreed to a tentative increase in wages, subject to a satisfactory adjustment being made with the Government to cover such increase.

The Canterbury Fruitgrowers’ Association in its annual report in 1946 drew attention to the fact that ten years earlier a shirt could be bought for the value of one case of pip fruit, whereas in 1946 it took four cases of fruit to purchase the same garment. It emphasised also that controls tended to turn growers from production of necessary lines to those that were less necessary but free of controlled prices. For example, glasshouses built for tomatoes, which were price-controlled, were used for flowers, which were not subject to price control.

Every delegate to the Federation’s 1946 conference showed a keen interest in the question of post-war marketing, and the report of the Apple and Pear Marketing Committee, which was laid before the conference, was keenly scrutinised. The report stated that a return to pre-war marketing practices for apple and pear marketing would be a retrograde step, and therefore the improvements made during the war period should be consolidated and extended.

It recommended also that all the principal essential food items should be co-ordinated within a general food organisation and that within this organisation there should be individual commodity councils, such as the Apple and Pear Council to handle the marketing of all apples and pears within the general framework of the organisation itself. New plantings were essential, the committee pointed out, and early varieties required special consideration. The committee further recommended that a secretariat be appointed to assess and continuously record the cost of production of various primary products and that its findings be available to both the Government and the industry concerned; that an assessment of the average loss from natural disasters should be included in the normal costs of production and this amount should be retained to assist affected growers and be administered by the future organisation; that in order to retain producer interest in marketing, growers should share in any profits made by the organisation above the costs of production guaranteed to producers; and that sales made direct by producer to consumer should be co-ordinated within the general marketing procedure. As the recommendations of the committee were so comprehensive and so vital to the industry, the report was referred by the conference to the industry's representatives in the various districts for their consideration and comment.

After giving consideration to all aspects of the post-war marketing of apples and pears the Federation directors recognised the absolute need for some form of controlled marketing of pip fruits and considered that the controlling authority should be a Board with full statutory powers and equal producer and Government representation and that the Board should have the right to elect its own chairman. For satisfactory marketing a State guarantee was necessary, and within this there must operate a schedule which would provide protection to the individual growers. The industry required a minimum guaranteed return of 90 per cent of the properly calculated cost of production, with a maximum return amounting to not more than 20 per cent above the properly calculated cost of production, with any further revenue credited to the guarantors.

Mr Brash did not seek re-election as president of the Federation in 1946 after holding the office for a record twenty-one years. Altogether he served the New Zealand primary producer for fifty-seven years. He was chief executive officer of the New Zealand Dairy Board from 1924 to 1941, a life member of Federated Farmers, and only the second lay moderator of the Presbyterian Church's General Assembly in one hundred years. Mr Brash's



Apple juice was dispensed at the fruit-selling stand in the Centennial Exhibition at Wellington in 1940 and was much appreciated by the public.



The Federation's directorate and senior executive staff in 1941: from left, standing, Messrs H. R. Sampson (Canterbury), A. Osborne (general manager), L. B. Robinson (Nelson), A. R. Emanuel (Auckland Citrus), J. H. Parker (assistant general manager), J. W. T. Doggett (Marlborough), W. K. Dallas (Director of the Horticulture Division); seated, W. A. Tate (Wairarapa), W. J. Rodger (Auckland), T. C. Brash (president), A. M. Robertson (Hawke's Bay) and R. Kinnaird (Otago).

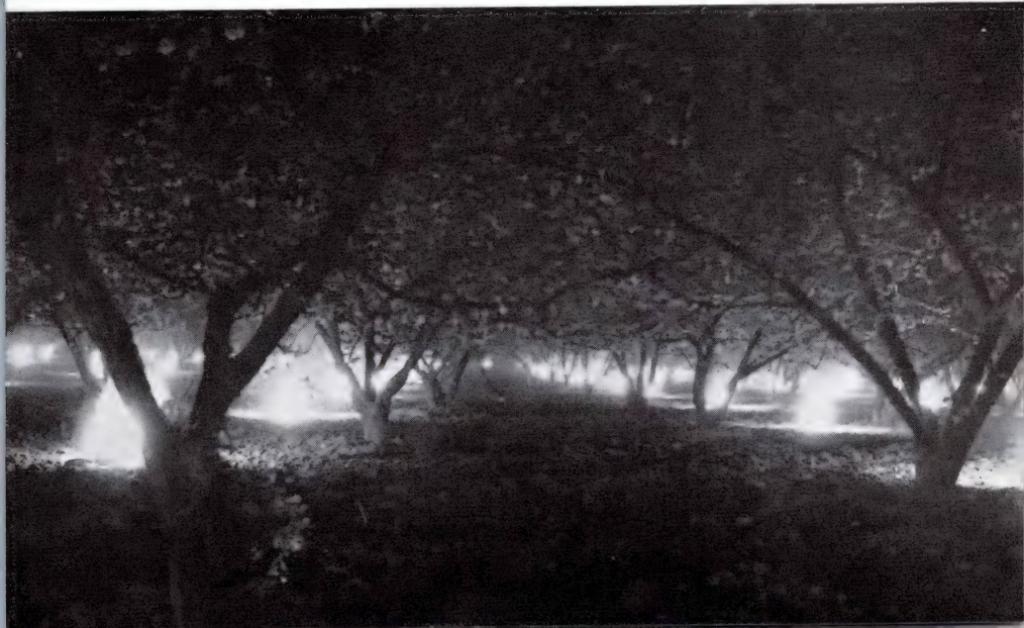


Nelson and Hawke's Bay are New Zealand's greatest fruitgrowing districts. Pictured above is part of the Redwoods Valley orchard area in the Nelson district, and below, on the fertile Heretaunga Plains, are seen orchards in the Frimley area at Hastings. At the turn of the century Frimley was the centre of the fruit industry in Hawke's Bay.





The need for protection against frost keeps orchardists on the alert in the late spring, especially in Central Otago. When the temperature drops to a certain level growers have to light their fire pots. Some orchardists use water sprinklers for frost protection but most still rely on fire pots.



The Queen and the Duke of Edinburgh visited Mr and Mrs A. A. Wake's Hillview Orchard at Hastings during their New Zealand tour in 1963. On the right Her Majesty is discussing a fruit topic with Mr Wake. Below, seen inspecting the foliage of a new type of nectarine at the Federation's Levin nursery are (from left) Messrs J. D. Atkinson (Director of the Fruit Research Division), B. R. McLaren (Federation secretary), Dr E. E. Chamberlain (Director of the Plant Diseases Division) and Mr G. Foxton (nursery manager).



chairmanship was always an outstanding feature of the Federation's annual conference. His skilful handling of the order paper, particularly on ticklish or controversial subjects, gained the admiration of all delegates and gave the annual conference the reputation of being the most efficiently conducted of all producers' assemblies in New Zealand. Mr A. B. Congdon, of Auckland, was elected the new president of the Federation.

The Dominion area in fruit in 1946 totalled 17,920 acres. This was considerably less than the area in 1930 and only a little over one-third of the area in fruit in 1918. There were now 4,813 growers, of whom 2,126 had one acre or more, totalling approximately 16,000 acres. This meant that about 44 per cent of the growers had 89 per cent of the orchard area.

Many ex-servicemen were interested in getting established on orchards with Rehabilitation assistance. There were very few existing orchards available for purchase by ex-servicemen, but there was scope for establishing new orchards for them in the main productive areas. The main difficulty that confronted the authorities in settling the returned men on new orchards was the long period that elapsed between the planting of trees and cropping. This difficulty was overcome by getting the men to earn their own living by outside employment or by intercropping and other activities on the properties during the development period. On this basis the Rehabilitation Board provided financial assistance to enable eligible and qualified ex-servicemen to get established. Although training in fruitgrowing was approved for some of the early applicants, the Board later decided that no encouragement should be given to ex-servicemen to enter the fruit industry if they were not already at the time of application fully qualified to undertake their chosen career. Altogether 265 loans were authorised to enable ex-servicemen to take up orcharding. The scheme was a success. Indeed, the Rehabilitation Board cannot recall any case where an ex-serviceman, once established on his orchard, was required for economic reasons to leave the industry.

Delegates to the Federation's 1947 conference were disappointed that no finality had been reached in negotiations between the fruit industry and the Government over a plan for future marketing, but after the Minister of Marketing, Mr E. L. Cullen, had explained the reason for this the growers agreed that all possible was being done to hasten a satisfactory decision. Later in the conference Mr L. B. Robinson, the Nelson director, announced that he was so dissatisfied with the delays in the negotiations that, in order to impress upon delegates the seriousness of

the position, he had taken the liberty of disclosing to some delegates the proceedings at recent meetings of the Joint Committee, which had been set up by the Government to consider the best method of marketing apples and pears. He asked the permission of the president to read these disclosures to the conference. If he was not permitted to do this, he said, he felt so strongly about the matter that he would have no alternative but to hand in his resignation as a director of the Federation and as a member of the Joint Committee. The president, Mr Congdon, said the matter was so serious that he would leave a decision to delegates. Mr Robinson was not given permission to read the disclosures. He thereupon handed in his written resignation to the president and left the conference hall. The Federation directors appointed Mr T. F. A. Archer to fill Mr Robinson's place on the directorate. Mr Archer stood for election in 1948.

The withdrawal of subsidies to the industry occasioned some concern because of the false values consumers had been educated to in past years. As a result of subsidies, fruit had been the cheapest food on the market. The fruitgrower's position was improved, however, by a new agreement for the marketing of the 1948 crop. The new guarantee gave him an added basic security, and the higher ceiling prices, consequent on the removal of subsidies, gave him a chance to recover the whole of his costs through favourable marketing conditions. The new ceilings, by allowing greater marketing freedom, to some extent made it possible to compensate growers according to the market value of each variety. The removal of ceiling prices on stone fruits was a signal achievement for the Federation directors who had consistently opposed this form of control ever since its inception.

After many months of negotiation between the Federation and the Government an agreement was reached on the handling of the New Zealand apple and pear crop. The agreement provided for a marketing board, similar to that operating in the dairy industry, and price guarantees, which would assure the fruit industry of some security and stability for the future. The New Zealand Apple and Pear Marketing Board, set up after the passing of the Apple and Pear Marketing Act, 1948, was given the power to acquire and market all apples and pears grown in New Zealand or imported. The average price to be paid in any season was to be determined by the Minister of Marketing in consultation with the Federation and was to be within the limits of 6d a case above or below the declared costs of production. In his announcement of the new agreement, the Minister of Marketing,

Mr Cullen, said the Board would consist of two grower members appointed by the Government from a panel of four submitted by the industry, two members nominated by the Government and a chairman to be nominated by the Government. The legislation would provide for consultation between the Federation and the Government on the appointment. Mr H. Turner, who had served New Zealand fruit exporters well in London for fifteen years, was appointed chairman of the Board. Messrs G. C. McMurtry (Nelson) and J. Hainsworth (Otago) represented growers, and the Government appointees were Messrs K. B. Longmore and M. J. Moriarty.

The change made in the exchange rate in 1948 reduced growers' receipts by shillings a case but lessened their production costs by only pence a case. This was a consideration that could not be ignored in the industry's negotiations with the Government.

Whether a charge should be made for the fruit case as well as its contents had become a lively issue by this time. During the war the Government, at the Federation's request, had made such a charge universal through its Internal Marketing Division, but after the war fruit retailers refused to recognise a case charge and set out to boycott the markets. The boycott spread and growers in many towns were selling their produce from carts in the streets. To give official support to the growers' challenge to the boycotters, the directors of the Federation sold fruit off a truck in Wellington.

Uneconomic orchard assistance through the Fruit Marketing Council ceased in 1949, and the balance in the accounts of the Marketing Department, amounting to approximately £40,000, was transferred to Treasury. A committee, known as the Uneconomic Orchard Fund Committee, was appointed to administer this account and granted assistance to apple and pear growers on the same general principles as were adopted by the Fruit Marketing Council. It was confined to helping those growers who were financially embarrassed and did not have the wherewithal to carry on production. Payments from the fund were classified into three categories: uneconomic orchard, hail damage and frost damage. The assistance given after natural disasters accounted for the greater proportion of the grants made from the fund in recent years. The loss of pip fruit from climatic causes averaged over the period from 1930 to 1950 was estimated to be 153,000 bushels a year. Frost damage accounted for 56.8 per cent, hail for 26.2 per cent and other climatic causes for 17 per cent.

The Apple and Pear Board's policy of holding certain

varieties of apples off the market until existing stocks of earlier varieties had been disposed of was criticised by delegates to the 1950 Federation conference. Growers complained also because so much fruit was being marketed outside the recognised authority and so much fruit was going on to the market out of condition. The Board chairman, Mr Turner, pointed out that the Board was called upon to take delivery of 120 varieties of apples and about fifty varieties of pears. "If they pass the grade we have to take them, and then we have to sell them," he said. "We do our best and we do sell them—but sometimes not at very flattering prices." Mr T. F. A. Archer, of Nelson, was elected president of the Federation after the 1950 conference.

The fruitgrower can never be certain how a season will work out, for his crop depends considerably upon the moods of Nature and can suffer severe setbacks or even be wiped out by hail or frost. It can be hit also in other ways. This uncertainty was strikingly brought home to fruitgrowers in 1951. A bountiful crop with unprecedented market prospects met with disaster from an unexpected quarter—a waterfront strike. The Minister of Agriculture, Mr Holyoake, announced that in order to avoid unnecessary losses of apples and pears as a result of the waterfront hold-up, the Government had given the Apple and Pear Board authority to buy fruit on the tree. The Board was also authorised to direct the packing of the fruit it considered the best to place in the limited storage available. The Federation made it clear that growers preferred that any loss incurred by them as a result of the strike should be borne equitably by growers throughout New Zealand and not rest mainly on one section in Nelson and Marlborough. The Board had to ask growers in Nelson and Marlborough to stop harvesting because the fruit could not be transported out of the district and stores were full, and some 600,000 cases of apples and pears were dropped on the ground in those districts. In the circumstances the question of direct loading at Nelson became of great importance, and due largely to the efforts of the Government and of Mr Holyoake, and also to the help of the Emergency Committee in making service labour available, three ships were laid on at Port Nelson and lifted a total of 404,000 cases. The financial loss was shared by the growers, the Government and the Apple and Pear Board, the growers' contribution being made through an adjustment of their average price for the season. The grower carried an overall loss of 3d a case, and the total loss to

the industry through the actual destruction of fruit was estimated to be about £143,000. It was most unfortunate that, with excellent prices being obtained overseas for export fruit, only a portion of the crop intended for export could be sent away. Had there been no strike, the Board would have wiped off its previous losses and made a substantial profit on the handling of the crop. At the Federation's conference in August the president, Mr Archer, thanked Mr Holyoake and the Government for the consideration extended to the industry in securing shipping for fruit during the strike. Because of his personal and sympathetic handling of the position, Mr Holyoake had been instrumental in smoothing out many difficulties.

Mr Archer was able to tell the conference that the Federation had shown a record turnover of more than £1,000,000. "Over the past thirty years we have built up a co-operative organisation second to none," he said. "It has been no easy path, however, particularly during the last few years when we have been up against shortages of supplies and high and ever-increasing costs." Mr T. C. Brash, the former president, expressed gratification at the figure, which he said was a tangible manifestation of the success of the co-operative system in conducting the growers' affairs.

As the Minister of Agriculture had advised the Federation directors that he proposed to repeal the Orchard Tax Act, 1927, because he considered it had served its purpose and he wished to eliminate the costs incurred by the department in collecting the orchard tax, the directors proposed that the tax be replaced by an orchard levy which would be collected by the Federation and would be on a flat rate to be fixed after consultation with the Minister. This proposal was acceptable to the Minister and it was approved by the industry at the 1951 conference. The conference also decided to press for improved transport between the South and North Islands and to recommend the Apple and Pear Board to set up its own marketing organisation under a general manager. The work of the Board at that time was confined to policy decisions and general control, but it had always been the intention of the Board to take over full control at some stage, and negotiations with the Government in 1952 reached the point where the principle of a change was agreed upon.

Up to 1952 no advance had been made in the picking of fruit to compare with advances from mechanical aids in the

packing shed. But pioneer work in bulk harvesting was now started on the orchard of Messrs N. and E. Williams in the Nelson district and this was to revolutionise fruit-handling methods, not only in New Zealand but also in other fruitgrowing countries. In fact, it is still today regarded by fruitgrowers as the greatest single innovation in their industry. Using shallow, linoleum-lined, multi-bushel bins mounted on surplus bomber air wheels, the Williams brothers made interesting discoveries. They found that the pickers greatly preferred the bins to bushel boxes. Picking was easier, faster and cheaper. And, contrary to the general prediction, the fruit suffered less injury. Less bruising was apparent particularly with Golden Delicious apples and with peaches. Bulk harvesting led to further streamlining of the operation at the packing shed, while the use of forklifts enabled the packed fruit to be loaded out from the packing shed on pallets and so greatly lessened the handling of individual cases. The fruit could remain undisturbed until the loaded pallet landed in the sling on the floor of the ship's hold, with a minimum of damage to the fruit and to the container. The introduction of forklift trucks in the general handling of fruit at assembly depots and at the port of shipment greatly assisted in the direct loading of a major portion of Nelson's fruit export consignments in 1952.

Growers were gratified to learn that the Board had made a surplus on its trading that year and to know that it was capable of making a profit when trading conditions were favourable. They derived much satisfaction also from the fact that, through the Board, the industry was acquiring assets in the form of cool stores, assembly depots and equipment.

A major milestone in the history of the fruitgrowing industry in New Zealand was reached on 1 December 1953 when the Apple and Pear Marketing Board took over from the Marketing Department the direct control of the purchase, assembly, distribution and marketing of the apple and pear crop. Mr D. F. Campbell, who had been deputy to the Acting Director of Marketing, was appointed general manager of the Board and most of its staff was recruited from the Marketing Department. The Board chairman, Mr Turner, pointed out that it had become increasingly evident over a considerable time that the full intent and objectives of the Apple and Pear Marketing Act could not be achieved unless and until the Board and its staff were directly accessible to the industry. The Board set up its head office in

a building which it purchased from Frozen Products Limited in Wellington.

For twenty years William Coward and Company Limited had been the London buying agent of the Federation, but under a new arrangement the Federation now decided to open a London office, with Mr W. J. F. Peterson, of William Coward and Company Limited, as London manager. This is the Federation's only overseas office.

The Orchard Levy Act, 1953, which came into force on 1 June 1954, transferred the power to levy from the Department of Agriculture to the Federation. For thirty-six years the department had collected orchard tax from fruitgrowers, and the money had normally gone toward the expenses of the annual conferences of the industry, the cost of tax collection, and research. The directors decided that the levy should be at the flat rate of £1 10s. on all orchards with 120 and more trees. The adoption of a flat rate made it no longer necessary for Horticulture Division inspectors to check the actual acreage and tree numbers. All that was necessary now was to check whether a fruitgrower had fewer or more than 120 trees. The number of fruitgrowers affected by the new Act totalled 2,141. There was also authority in the Act to impose a special levy in an endeavour to eradicate or control any important disease, such as fireblight, and this general proviso enabled the Fireblight Act 1922 to be repealed.

A bonus of £1,200 was offered by the Federation for an efficient, practical and economical method of frost control in orchards in New Zealand. Numerous suggestions, many ingenious, were considered by a special sub-committee, but none stood up to requirements and so no award was made. The Federation then imported a wind machine for trials in Central Otago, but the trials were not successful.

Mr Turner retired as chairman of the Apple and Pear Board in January 1955 and was succeeded by Mr J. H. Parker, who had had a long association with the fruitgrowing industry, first as a grower, then as Nelson branch manager and later as assistant general manager of the Federation and, from 1950, a grower member of the Board. Mr Parker was very well known also outside the industry as a member of the "invincible" All Blacks of 1924-25 and as a leading Rugby administrator.

A committee set up by the Director of the Horticulture Division, Mr A. M. W. Greig, to investigate and make recom-

mendations for improving the quality of apples and pears available for purchase by consumers in New Zealand considered that the Board should encourage growers gradually to reduce the multiplicity of varieties grown. It was pointed out that of the 139 apple varieties, fifteen provided about 94 per cent of the total production and these fifteen would provide a good selection of fruit for the public. Of the forty-four varieties of pears, nine provided about 93 per cent of the total production and these nine varieties would provide a good selection during the year.

New Zealand's first national apple-packing championships were held at Wellington in May 1955. They were organised by the Federation and the Board not only to encourage packing proficiency and foster local loyalties and friendly rivalries among packers, but also to afford city people the opportunity to see an important operation of the orchard industry about which they would otherwise know little or nothing. The Deputy Prime Minister and Minister of Agriculture, Mr Holyoake, demonstrated that he was still a proficient packer when he challenged the Federation president, Mr Archer, to a one-case packing contest. To the delight of the large audience in the Town Hall, they provided a star turn of the evening. Mr Holyoake won the contest by half-a-layer. The New Zealand championship was won by a teenager, Mr R. Dawson, of Ruby Bay, Nelson.

Something of a crisis arose suddenly in the fruit industry late in July 1955 when a Hastings fruitgrower, watched by an Apple and Pear Marketing Board inspector, carted a truck-load of apples from his orchard all the way to Wellington for a stall he had secured in the Wellington City Council's new open market. The Board took proceedings against the grower on the grounds that he could not sell fruit directly to the public in this way, and this action resulted in a flare-up of public opinion against the regulations relating to the direct selling of apples and pears. The matter was raised in Parliament and the Board's chairman and members were summoned from the provincial fruitgrowers' conference at Hastings to an immediate conference with the Minister of Agriculture, Mr Holyoake, in Wellington. The Federation's president and general manager also took part in the conference. The Board's attitude was that over the years a number of prosecutions had been taken to enforce the regulations and this particular case was one of a series. To proceed other than in the normal way, therefore, would have left the Board open to a charge of discrimination. After

Hundreds of Australian girls, on working holidays in New Zealand, help with fruit harvesting in the Nelson district. Pictured apple-picking on an orchard at Mahana are Janet Cadell and Sandra Walker, both of Brisbane.



Mr A. Osborne, general manager of the Federation from 1934 to 1964, on left, congratulates and extends good wishes to his successor, Mr A. C. Greer.

NEW ZEALANDS

FINEST APPLES & PEARS.

KEELING & WHITE LTD



New Zealand apples and pears are inspected by an officer of the Horticulture Division of the Department of Agriculture after their arrival in London. In the picture above, Mr E. R. Taylor (second from left), who did the inspection in 1965, is discussing the fruit with Mr P. White. On the far right, Mr N. Guymer, assistant London manager of the Apple and Pear Board, is engaged in discussion with Mr C. Bentley. Below, prospective buyers inspect the new season's fruit from New Zealand at the London Fruit Exchange auction room, Spitalfields.



further consideration of the matter the Federation directors and Board members took the view that the regulations could be altered to allow the Board to issue a licence to permit a grower to sell his own fruit at a properly authorised municipal market, subject to any conditions to be laid down by the Board as to place, grade or other conditions. This view was subject to the Board being free to use what channels it considered economical and desirable to get fruit to the consumers in the best possible condition, in the shortest time and at the cheapest price.

The Board chairman, Mr Parker, told the Federation's 1955 conference that the efficiency of production methods in New Zealand compared favourably with any throughout the world. Some people were afraid that a guaranteed price and organised marketing might create a state of complacency among growers, he said, but nothing could be wider of the mark. The grower had been freed of marketing worries and had been enabled to concentrate on production problems. He had taken full advantage of the opportunity; he had tackled his growing problems and had been prepared to adopt new sprays, new machinery and new methods. The purchase of new equipment and the rebuilding and modernisation of packing sheds had all called for heavier capital investment by growers, but had paid dividends in more efficient production.

Soon after the start of the pip-fruit selling season at the Wellington Municipal Market in February 1956 the Board announced its intention to sell direct to the public. Its general manager, Mr Campbell, said that the apples sold direct to the public by the Board would carry a guarantee that if the customer was not satisfied his money would be refunded or the fruit replaced. This scheme was launched in Wellington and was gradually extended to Auckland and other districts. The price of the fruit included delivery to consumers' homes in urban areas, or to the nearest railway station in country areas. The Board also introduced that season its attractive marketing of small quantities of apples in plastic bags and through a variety of channels.

As well as the great advance in bulk harvesting, notable advances were made in spraying techniques during the five years from 1952 to 1957 and the orchardist's job became a good deal easier with the introduction of automatic spraying equipment. In the early years of the second world war spraying was done almost entirely by hand. Many orchards were permanently piped, and the pump and spray vat were located in a shed. Hoses were coupled to taps placed at regular intervals throughout the orchard

and operators sprayed the surrounding trees before moving on to the next tap. These were known as "stationary" outfits. They proved efficient, but the work was very tedious and time-consuming. Portable sprayers, with two men spraying from the ground with long hoses, were also popular. A later development, particularly on larger properties, was the use of "crawler" outfits, which usually involved three men—two spraying from platforms on the back of the unit and one man driving the sprayer at a slow, steady speed between the trees. With this system it was possible to cover up to ten acres in an eight-hour day, but although spraying was done faster with a high degree of efficiency, the need for three men was an important consideration. High labour costs and the scarcity of suitable labour forced many growers to adopt more economical means, and this was made possible with the introduction of a range of automatic sprayers or, alternatively, conversion units suitable for attaching to existing machines. Growers were now able to spray their orchards with one operator in a quarter of the time required previously, and in a more pleasant and convenient manner. This facilitated more frequent spray application during critical periods of disease or insect attack.

The education of young orchardists and the improvement of the qualifications of those people assisting the industry technically and scientifically have received much attention from the Federation directors in recent years. In 1957, with assistance from the Apple and Pear Board and from Fruit Distributors Limited, the Federation directorate initiated a young fruitgrowers' exchange scheme, under which New Zealand orchardists were given an opportunity of broadening their knowledge of the industry with a period of practical experience in orchards overseas. Two young New Zealand orchardists were exchanged with two young Australians. The scheme was an outstanding success from New Zealand's point of view. But as Australia did not have a central organisation for fruitgrowers the arrangements with that country had to be made with individual people. Difficulty was experienced in arousing the enthusiasm of Australian growers, and after a few years the lack of interest at the Australian end led to the abandonment of the scheme.

Officially opening the Federation's 1957 conference at Roxburgh, Mr J. H. George, local orchardist, former Federation director and now M.P. for Otago Central, emphasised the need of a system throughout New Zealand for the orderly distribution and marketing of stone fruit. "If stone-fruit growers could adopt a scheme with Government and grower participation," he said,

"their section of the industry would benefit just as the pip-fruit industry benefited through operation of the Apple and Pear Marketing Board. As things are at present, the stone-fruit industry is as far back as the pip-fruit industry was twenty years ago. With famines, gluts, boom prices and low prices all occurring within a week, there is neither stability nor security, and consequently there is very little confidence in the future."

Education was well to the fore again in 1958. In recognition of Mr T. C. Brash's service to the fruitgrowing industry as a director and president of the Federation over many years, the Federation directors decided to make available annually two bursaries tenable at either Massey University or Lincoln College, University of Canterbury, for resident New Zealand students studying horticulture. Primarily, the aim with the T. C. Brash Memorial Bursaries was to encourage, with facilities for a wider education in horticulture, young people who intended to make fruitgrowing their career. A fruitgrowers' farm school, the first of its kind in New Zealand, was held at Hastings that year. It was organised by the Horticulture Division of the Department of Agriculture, in conjunction with the Hawke's Bay Fruitgrowers' Association, the Plant Diseases Division and the Fruit Research Division of the Department of Scientific and Industrial Research, and was an outstanding success. A similar school was held later in Nelson, and Auckland had its first fruitgrowers' farm school in 1966. These schools are intended as instruction and refresher courses for growers and have been very well received by the industry.

The New Zealand fruitgrowing industry was honoured by the appointment in 1958, for the first time in the world, of a fruitgrower as a Nuffield Scholar. The successful candidate was Mr S. D. Sinclair, of Nelson, who is today a grower member of the Apple and Pear Marketing Board.

The 1959 season was disastrous financially for the Apple and Pear Board. The Board was faced with a record crop of 3,896,361 bushels. The local market responded extremely well, but for the first time in eight years the Board's overseas operations showed a loss—a heavy loss. This could be accounted for mainly by the heavy Northern Hemisphere crops in 1958, the carry over of fruit into the Board's recognised selling period, and the heavy competing cargoes from South Africa, Australia and the Argentine. The Board's net loss for the year was £433,963.

At the Federation's 1959 conference the president, Mr Archer, referred to the world-wide increase in production and stressed the industry's need to be alive to the problems arising from it. Alert

to the danger, the Apple and Pear Board sought far and wide for new markets, but in volume of consumption none of these approached the tonnage taken by the United Kingdom and Europe.

In accordance with a remit carried at the Federation's 1959 conference, a material change in the basis of purchase was made by the Apple and Pear Board. The new price schedules, which were designed to pay a price in each district related to the market value of the fruit to the Board, came into operation at the start of the 1960 season.

As an expansion of its service to the industry, the Federation in 1960 established a factory in Nelson for the manufacture of high-quality fruit-handling equipment. The new factory started specialising particularly in the supply of the "Ansa" range of equipment, including graders, elevators, conveyors, packing stands and so on. Mr N. Williams, who with his brother had initiated bulk-harvesting some years earlier, developed the high-capacity Ansa grader, but it was then decided that the Federation should undertake its manufacture. Ansa graders and bulk-harvesting equipment manufactured at the Nelson factory were soon operating not only in New Zealand but also overseas. As the result of a visit by the Federation's general sales manager, Mr C. R. Macleod, arrangements were made for the manufacture of this equipment in both Australia and South Africa.

The fruit industry spotlight was well and truly on Nelson in 1961, with the opening of the Apple and Pear Board's new 160,000-case cool store and a start being made on a fruit-processing factory at Stoke. The cool store, built on reclaimed land, was within a stone's throw of the new McGlashen Quay and so made it possible to load directly from the store to overseas vessels. Ready to go into operation at the start of the pip-fruit season, the store presented the Board with an excellent opportunity to invite parliamentarians and newspaper representatives to visit Nelson for the official opening and to enable them to see at first hand the various aspects of fruitgrowing and cool-store operation in the district. The Board's invitation was accepted by 26 M.Ps—probably the biggest number ever to visit any district at once—and a score of pressmen. The visitors were particularly impressed by the bulk-handling facilities used by growers in the orchards and by the techniques and up-to-date equipment in packing sheds. The opening of the cool store increased to more than a million bushel cases the cool-storage capacity over which the Board had direct control. The Board chairman, Mr Parker, pointed out that since the Board was formed in 1948 the total crop had doubled to about four

million cases a year. The Minister of Agriculture, Mr W. H. Gillespie, commended the Board for the good job it was doing in supplying fruit to the public throughout the year. The new cool store and the proposed fruit-processing factory, he said, would help safeguard the industry.

The Board's factory at Stoke was completed later in 1961 and in November of that year some ten thousand cases of apples were processed into solid pack apple slices to meet an overseas order. Early in 1962 a full staff was recruited and the factory entered into full production of apple juices, solid pack apple slices, apple pie-filling and sauce. In establishing its cannery the Board brought into being an industry which is serving the New Zealand housewife, providing health-giving fruit juices and at the same time benefiting fruitgrowers by expanding their market and disposing of lower-grade fruit. It also opened up new markets overseas and so has helped to benefit the country's economy.

A committee was appointed by the Government in 1961 to inquire into the sale and distribution of apples and pears on the local market. After hearing evidence over a period of four months, it found that controlled local marketing of apples and pears had brought a measure of stability to the industry, with justice to all concerned, and this was well appreciated by those engaged in it. "The need for controlled marketing, advocated so strongly by the Coleman Committee in 1937, applies with equal force today," it stated. "The present committee makes it clear at the outset, therefore, that it supports the continuation of controlled local marketing of pip fruits." The committee found the pip-fruit industry in remarkably good heart and was satisfied that distribution was, on the whole, efficient and economic and operated in the public interest.

Within a year of the opening of the cool store at Nelson the Minister of Agriculture, Mr Gillespie, had died and his successor, Mr T. L. Hayman, had also died. Mr B. E. Talboys was appointed to succeed Mr Hayman. Mr Talboys is the eighteenth Minister of Agriculture since the Federation was formed fifty years ago. The average tenure of this important portfolio has been shorter than the normal term of a single Parliament.

The Queen and the Duke of Edinburgh, during their New Zealand tour in 1963, visited a typical New Zealand orchard at Hastings, and this was much appreciated by New Zealand fruit-growers as a gracious compliment to the whole industry. Mr and Mrs A. A. Wake's Hillview Orchard was in showcase order for the occasion.

The official opening of new premises to accommodate the Motueka branch of the Federation in July 1963 brought to fulfilment the directorate's progressive policy of establishing all branches throughout New Zealand in modern, commodious buildings owned by the Federation. It now also owned its head office accommodation in the Huddart Parker Building.

The Department of Agriculture's five-yearly official survey of the fruitgrowing industry in 1963 showed that New Zealand's apple and pear orchards were in a healthy condition, with 90 per cent of the trees capable of providing good crops. The increase of 121,000 apple trees over the five years was double the increase in the previous five-year period. Included in the 1,208,000 apple trees at the time of the survey were 141 varieties, but 109 of these made up less than 2 per cent of the total number. The number of pear trees increased over the five years by 30,000 to a total of 174,000, and there was an increase of about 6 per cent in the total number of stone-fruit trees. Peach trees showed the greatest increase in the stone-fruit category and made up 55 per cent of the 620,000 stone-fruit trees throughout New Zealand.

Sturmer was still the most plentiful variety of apple tree at the time of the 1963 survey, with a total of 210,385 trees, but Granny Smith had closed the gap and was a good second with 203,467 trees and easily the most young trees. The following winter Granny Smith took the lead. These two varieties in 1963 contributed more than one-third of the total number of apple trees and more than one-third of the apple crop. Other major apple varieties at the time of the 1963 survey were Delicious (with 138,281 trees), Cox's Orange Pippin (115,539), Jonathan (112,353) and Golden Delicious (97,912). Just on one-fifth of the apple trees were under five years old. The greatest increases in tree numbers were in the Granny Smith, Golden Delicious, Red Delicious, Cox's Orange Pippin and Kidd's Orange Red varieties. These varieties should therefore provide the greater part of the expected increase in the apple crop. Only two varieties of pears, Williams' Bon Chretien and Packham's Triumph, increased substantially in tree numbers over the five years since the previous survey, and these varieties, especially the former, should provide the greater part of the anticipated increase in the pear crop.

Though there were some 200 varieties of peach trees in commercial orchards, Golden Queens had increased to such an extent that in 1963 they made up 42 per cent of all peaches grown in New Zealand. More than 65 per cent of the Golden

Queen trees were in Hawke's Bay, and of these more than half were under six years of age. Gisborne, the next major district for this variety, had an even higher proportion of young trees. It was significant that districts growing peaches primarily for supply to canneries showed a high planting rate, while those districts supplying the fresh fruit markets remained static or showed some reduction in the number of peach trees.

The orchard levy was increased in 1963 to the maximum of £2 10s allowed under the Act and the additional receipts have been used for direct research purposes at the discretion of the directors. These have included grants to subsidise the salaries of science students assisting in fruit research during the summer vacation, grants to the Cawthron Institute to assist in research on the bitter pit problem, and the provision of materials for the Department of Scientific and Industrial Research.

The retirement of several people who had served the industry well over a long period was a feature of 1964. A great record of forty years' service in the employ of the Federation was completed by the general manager, Mr A. Osborne, who with his wisdom and ability built up the trading side of the Federation and saw the Federation staff increase in number from seven to 120. Mr Osborne was succeeded by Mr A. C. Greer, who had joined the Federation in 1932 and had been assistant general manager since 1958. Mr B. R. McLaren, secretary, was appointed to the further position of deputy to Mr Greer and replaced him as the fruit industry's representative on the Agricultural Chemicals Board. Mr J. H. Parker retired as chairman of the Apple and Pear Marketing Board and was succeeded by Mr K. B. Longmore, who was one of the original Government members of the Board. Mr R. Mathews retired after twelve years as editor of *The Orchardist* and was succeeded by Mr C. R. Monigatti.

One of the most modern apple grading and packing plants in the Southern Hemisphere was brought into operation at Hastings in 1964. The new packing line was designed and built by the Federation's manufacturing division at Nelson and was installed in the new J. H. Parker cool store. Its main use is to pack fruit for those overseas markets that require deliveries after the New Zealand harvesting season has ended and to deliver to the New Zealand market freshly-packed and graded apples that have been held in the loose in bulk bins. The following month the Board's new head office and administrative building in Wellington was officially opened by the Prime Minister, Mr Holyoake. Provision was made in it for the housing of a computer, and this was

installed early in 1965 and was soon working on growers' payments and recording statistical information on the crop.

Unfavourable weather conditions, together with an unexpected increase in the crop when it was too late to arrange for export, caused the Board to lose £623,895 in 1964. This is the biggest loss the Board has suffered, and as there was no Government subsidy involved in the deficit it cut the industry's reserve fund in half. By far the greater part of the loss was suffered on the local market. The Board made a profit of £219,276 in 1965 and this brought the reserve fund back from £620,700 to £839,976. Though it represented an improvement in sales value of more than £1,000,000 over 1964, the profit still only amounted to 2 per cent of the sales of £8,523,000.

A party of American fruitgrowers who toured New Zealand in 1966 were most impressed by this country's fruit industry and by the production obtained from orchards. At the end of the tour one member of the party, Mr J. Bregger, of Clemson, U.S.A., said he thought New Zealand's apple production was the best in the world.

New production records have been set in the Federation's golden jubilee year. The Board's receipts for the 1966 season were more than 5,350,000 bushels, and the total export figure was also a record at 2,900,000. The cannery, too, set a new record with the processing of 579,000 bushels, of which a substantial part was for export. Records were broken also in stone-fruit production, the estimated crop of 1,621,000 bushels exceeding the 1965 record crop by a quarter of a million bushels. The peach crop, accounting for 1,116,000 bushels, topped the million mark for the first time.

The industry has certainly come a long way since 1916 when Parliament duly obliged by imposing on fruitgrowers a tax which they themselves requested. In spearheading this progress, the Federation has done so on very limited capital. Its "subscription" capital today totals only £47, from shares held by the district fruitgrowers' associations. It developed under careful direction and management and with the support of fruitgrowers.

"In its dual role as the official voice of the fruitgrowing industry and as a major supplier of orchard requisites the Federation plays a most effective part," says the Minister of Agriculture, Mr Talboys, in a special golden jubilee message. "Established at a time of uncertainty in the young industry, the Federation has done a great deal to maintain confidence and unity among fruit-growers, particularly during the period when orcharding was a

precarious and somewhat unprofitable occupation. It is fitting at this stage for fruitgrowers and the Federation to review past achievement and draw further inspiration from the story of progress made during the last fifty years."

5

THE FRUITGROWING DISTRICTS

NEW ZEALAND'S MILD CLIMATE and well-distributed rainfall—described by Lord Bledisloe in 1930 as “incomparable”—favour production of a large variety of fruits, ranging from apples, pears, stone and berry fruits to citrus and subtropical fruits. There are six major orchard areas: Auckland, Hawke's Bay, Nelson, Marlborough, Canterbury and Otago.

The Auckland area covers districts from Kerikeri to Hamilton and Tauranga and provides pip fruit, stone fruit, citrus and subtropical fruits, and to a lesser extent berry fruits. It is easily the most widespread area and at one time had the greatest acreage in orchard, but today its fruitgrowing area of some 4,500 acres takes second place to that of Hawke's Bay-Gisborne. Auckland has easily the greatest number of growers, however, with some 900 engaged in commercial fruitgrowing. The comparatively small average holding of five acres indicates that many undertake fruitgrowing as a sideline commercial activity. This applies especially to citrus production. The considerable reduction in acreage over the years, as in other districts, has easily more than been made up for by the tremendous advance in the whole technique of fruitgrowing.

Auckland and South Auckland, with a combined population of more than one million people, produce less than half-a-million bushels of pip fruit. There is considerable scope, therefore, for expansion of apple orchards in this area. Localities that suggest themselves as suitable are Kumeu and Riverhead north of Auckland City and the vicinity of Hamilton, where the orchard area is already increasing though it is not easy to obtain land.

The Granny Smith is by far the most popular apple variety in the Auckland district. “We used to grow a lot of Delicious but in 1936 we had major trouble with the export of this variety, and as a result all growers decided to graft over their trees to

other varieties," said the Federation's Auckland branch manager, Mr S. M. Conway. "Our production of Auckland Delicious has remained within the 20,000 or 30,000 cases a year ever since, though at one time we exported as many as 180,000 in a year." Because of the size of its consumer market, Auckland is not a major fruit-exporting district. But with the increasing volume of Granny Smith apples, the Apple and Pear Board maintains it is essential that Auckland exports a proportion of the available crop.

Although the greatest acreage is still taken up with apples and pears, there has been marked development in recent years in grapes, stone fruit, subtropical fruit and citrus. Each year housing takes its toll of several acres of orchard, but despite this loss the 1966 pip-fruit crop set a new record.

More than half of all Auckland district fruitgrowers are Yugoslavs, who represent the only distinctive national group in New Zealand's fruit industry, though a parallel could be drawn with the Italian tomato growers of Nelson. It was about 1905 that the first Yugoslavs bought land around Oratia, Henderson, Kumeu and Huapai and began planting their orchards. Among those pioneers were the Vellas, Marinovichs, Borichs, Sundes, Glucinas, Nolas, Deans, Vranjes and Papas. The Yugoslav colony found it hard going buying trees, equipment and materials until the trees developed and cropped. But gradually they surmounted their difficulties and made rapid progress, and through their strong family tradition the sons took over where the fathers left off. Today individual Yugoslav families have the largest orchards in the district, possess the most modern machinery, produce the biggest stone-fruit and pip-fruit crops, and their fruit ranks among the best for quality. One of the early Yugoslav growers, Mr M. Glucina, propagated the Oratia Beauty, a very successful early eating apple.

Mr L. W. Smith is Auckland's eleventh Federation director. His predecessors, in chronological order, were Messrs A. Wilson, E. C. Walton, H. Paltridge, T. W. Attwood, H. S. Izard, W. J. Rodger, A. R. Emanuel (citrus), A. B. Congdon, M. A. Cruickshank and W. S. Rust. Messrs Wilson, Attwood and Congdon were also Federation presidents. The Federation's first branch office was established in Auckland in August 1926 and in the forty years since then there have been only two branch managers, Messrs F. L. Howell and S. M. Conway.

The low and coastal lands of Hawke's Bay are ideal for orchards, vineyards and arable crops and provide a natural fruit bowl. Apple trees in this district give one of the highest average

yields in the world, and on exceptional apple orchards at Hastings and Havelock North the yield would be hard to beat anywhere. About half of the pip-fruit production in Hawke's Bay is exported.

As early as 1890 an overseas expert, Mr F. H. Spawn, declared that Hawke's Bay contained some of the finest fruitgrowing land in the world and that if cultivation of fruit were properly started and carried out there was no reason why the district should not become the "San Jose of the south." Progress was soon made in this direction. In the early 1900s the Frimley Orchard, about two miles from Hastings, was the centre of the fruit industry in Hawke's Bay. This orchard was a mile long and had about eight rows of peach trees extending along its whole length. Mr J. N. Williams, who originally planted a large area of peach trees, allowed any person who was interested in fruitgrowing to buy a certain area of the peach orchard. In 1904 Mr Williams established a canning factory close to the orchard, and a year or two later the Hawke's Bay Nurseries were established on an adjoining area of almost forty acres. The fruit from Frimley was sent to nearly all southern parts of the North Island, vast quantities being despatched every morning by train during the season. The canning factory did a great deal to promote the industry at that time but the venture was ill-fated as acute labour difficulties later forced it to close down. Mr Williams pioneered the industry in the Bay. He was the first president of the Hawke's Bay Fruitgrowers' Association which was formed in 1899 and is today the biggest association of fruitgrowers in New Zealand. Another notable orchard in the earlier years of the century was the Greenmeadows Fruit Farm, about four miles from Napier. At one time it had eighty acres in a great variety of fruits and was the largest orchard in New Zealand, but later it was subdivided into a number of smaller holdings.

Though blessed with a favourable climate and fine land for fruitgrowing, the Hawke's Bay district has nevertheless occasionally been subjected to disastrous visitations in the form of very severe frost, hail and flooding. The 'thirties were a most trying time for orchardists in Hawke's Bay. First, there was the depression, and on top of that, in February 1931, the disastrous earthquake. The earthquake did not cause extensive damage to the fruit industry, but it temporarily disorganised the flow of the fruit harvest and destroyed trees and artesian wells, and the cracked ground in many places made it necessary to pull out and re-establish trees. A tremendous gale in February 1936 dealt a crippling blow that season, and an extremely severe frost, of 14 degrees at grass level,

the following October practically wiped out the 1937 crop. Those setbacks broke some growers financially and their orchards were almost given away. Many more hung on by the skin of their teeth. In addition, rivers ran riot and flooded orchard country up till the late 1930s, but an end was put to this flooding by the rivers control scheme. Following the big frost of 15 October, 1936, Hawke's Bay orchardists adopted the fire-pot method of frost fighting. The big 1936 frost came just eighteen years after an extremely severe frost in October 1918 and was followed by another very severe frost exactly eighteen years later to a night. The local growers are sure to be taking extra special precautions on the night of 15 October, 1972. It has yet to be proved in Hawke's Bay that fire pots can offer adequate protection with a frost of the severity of that in 1936. Frost in the spring of 1965 caused Hawke's Bay growers to burn their pots on more occasions than in many previous years, but there were no heavy losses of crop.

A great boost has been given to the fruitgrowing industry in Hawke's Bay by the fruit and vegetable processing activities of J. Wattie Canneries Limited which commenced operations in November 1934 and is today the largest company of its kind in New Zealand. It gave an assured market to growers and encouraged them to increase production of a variety of crops, but particularly peaches. The conferring of a knighthood on Sir James Wattie recognised his great contribution to the progress of the district.

Linked with Hawke's Bay in the organisation of the industry is the Gisborne district, where large post-war plantings have greatly increased production in recent years. Gisborne's 1966 pip-fruit crop was of record size and excellent quality.

Hawke's Bay and Gisborne reverse the trend of the other main fruitgrowing districts in regard to the acreage in fruit today compared with fifty years ago. Whereas the other districts show a greatly reduced acreage over this period, the area in Hawke's Bay and Gisborne has almost doubled. At 5,395 acres in 1965 it was greater than the fruitgrowing area in any of the other districts. Hawke's Bay and Gisborne have some 530 growers.

More than a few important innovations in the industry originated with Hawke's Bay growers. Two whose inventive bent was put to good use are Mr E. J. R. Milne and Mr F. Meissner, both of whom started in fruitgrowing in 1916 and, fifty years later, are still actively associated with the industry.

Among the prominent family names in the fruit industry in Hawke's Bay over the years have been Fourneau, Fulford, Paynter, Jarvis, Masters and Robertson. Probably no one person was more

prominent over a long period, however, than Mr A. M. Robertson, who was one of the original directors of the Federation in 1916 and continued as Hawke's Bay director for the record term of twenty-nine years. Mr Robertson was one of the prime movers in getting the Federation to take over trading from the district associations to consolidate the industry. He was also instrumental in getting apple-packing competitions going, seeing in them a means of creating an interest in apple packing as a form of employment.

Hawke's Bay has had only three Federation directors, Mr Robertson being followed by Mr A. Miller and the present director, Mr H. Osborne. Mr A. L. Baumgart was first to hold the position of branch manager of the Federation in Hawke's Bay, and he was followed by Mr C. G. Wilkinson and the present branch manager, Mr A. J. King.

The Nelson fruitgrowing area, which includes Motueka and Mapua, has the greatest apple production of all New Zealand's fruitgrowing districts and contributes about two-thirds of the country's apple exports. In the 1966 season Nelson produced a new record quantity of some 2,350,000 bushels of apples, or about half of the New Zealand total. Three-quarters of this production comes from land which sixty years ago was considered worthless.

The Moutere hills would hardly support a sheep to ten acres and the rabbits on them were starving. But information that Mr A. McKee, of Riwaka, had come by in 1910 led him to believe that this land was suitable for the growing of apples. The idea had earlier occurred to him that New Zealand should follow Tasmania and develop an export trade in apples and pears and he was determined to go ahead with a plan he had for a large-scale orchard settlement. He bought the freehold of two blocks of manuka-clad land, then known as the Moutere Bluffs and comprising 2,600 acres, renamed the area Tasman, after the discoverer of New Zealand (and no doubt again with the example of Tasmania in mind), and set to work to clear, road and plant the upper portion of the estate—a block of about 900 acres. Planting was started in 1911. Mr McKee sold the balance of the estate to Tasman Fruitlands Limited and acted as its chairman of directors until the company finished its job and went into voluntary liquidation. The company undertook to clear the land, plant the trees and carry them on to the bearing stage on behalf of absentee owners. The "grow apples for export" slogan spread. Other companies were formed to buy up estates on the Moutere hills cheaply and subdivide them for fruitgrowing. Nurserymen in both New Zealand and Australia were kept busy fulfilling orders for apple and pear trees, but many

of the varieties planted were later found to be unprofitable. The Moutere Amalgamated Fruitlands Limited started orcharding in the Mahana area in 1913 with the Mahana, Bell Block and Bronte Estates. Nearby Mapua, known then as the Seaton Estate, was subdivided and offered for sale in 1914.

A brochure on the Seaton Estate had the title "New Zealand's Latest Enterprise—Apple Growing for the Great Markets of the North." In the brochure it was pointed out that "the shipping point for the Moutere orchards is known as the Western Entrance, a handy port with a good depth of water for coastal steamers. Here the central packing and grading sheds will be situated, and off this port in the deep water of Tasman Bay the ocean-going boats will lie at anchor loading the fruit from barges, and thus saving heavy dues and freight to Wellington." Through the "Western Entrance," now known as Port Mapua, today about half-a-million cases of fruit are shipped each year, but many a setback had to be faced and many difficulties overcome before this position was achieved. One company established 200 acres in orchard at Mapua in 1915-16 but six or seven years later the company collapsed and all but about thirty acres was pulled out. In many parts of the Nelson district things did not work out altogether as the absentee orchardists had expected and many of their orchards were sold or pulled out. However, most of those who took up land at Tasman in the early days stayed there and probably fewer fruit trees were pulled out in that district than anywhere else.

That confidence of Mr McKee and others who saw great apple-growing possibilities in the Moutere hills was soundly based, for today, with topdressing and proper treatment at a cost of about thirty pounds to the acre, this land is carrying some four or five five sheep to the acre and has become fine orchard country.

The area in orchard in the Nelson district today, some 4,350 acres, is not much more than one-third of the 12,079 acres that were planted in orchard in the district fifty years ago. Not all of the reduction in acreage can be attributed to failure to make a success of fruitgrowing, however. In Stoke, for instance, a considerable area of orchard land has been lost to housing. In the Riwaka district much of the orchard area went out for tobacco. But over recent years, with the industry so soundly based, there has been increased interest in new plantings. There are some 250 fruitgrowers in the district today. The average orchard area is seventeen acres. This is a considerably greater average than that of any other fruitgrowing district in New Zealand.

Fruitgrowing in New Zealand has developed with individual growers having their own packing shed and this has involved each grower in considerable capital outlay. A notable exception is provided by the Bluffs Fruitgrowers' Company which is the only co-operative fruit-packing shed in New Zealand that started as early as 1920 and is still in existence. The company originally had eight orchardists and today has seven.

There have been some great records of long service by orchardists in their district associations, not only in Nelson but in the other provinces. Especially noteworthy is the record of Mr A. C. Maisey who was secretary of the Redwoods Valley Fruitgrowers' Association for forty-six years.

Mr. G. C. McMurtry, who had his orchard at Waimea West, developed one of the first grading machines in the early 1920s. It was a hand grader and came into fairly general use. After the second world war Mr McMurtry invented a case-nailing machine. He also invented a machine for labelling cases and this is widely used today. Another Nelson fruitgrower, Mr J. Marshall, of Stoke, also made a contribution to the industry with his Sunbeam grader and case press. He also produced the famous Sunbeam apple cider and Perry wine.

Nelson depends upon a considerable influx of seasonal workers each year. In the 1966 season the Department of Labour at Nelson allocated 402 men and 684 women to orchard work in the district. Almost half of the women were Australian girls enjoying working holidays in this country. As an inducement to seasonal workers, the department offers one-way fares up to a maximum of £4 on condition that the worker remains on the job for a minimum period of four weeks.

The Moutere Hills Fruit Show, with apple-packing competitions, which was initiated by the local Presbyterian Church as a victory celebration soon after the second world war, has become an annual fixture which people in the district regard as one of the big attractions of their harvesting season.

Nelson's harbour development has made possible a substantial increase in overseas loadings. In fact, transhipment at Wellington was practically eliminated in 1966 with a record quantity of export fruit, totalling 1,461,500 cases, shipped overseas directly from Nelson. Another feature of the year's shipping programme was the complete loading of two ships with fruit at Port Nelson. The *Romanic* took 230,000 cases and the *Ulster Star* 203,000.

Nelson has contributed two long-serving presidents of the Federation in Mr T. C. Brash, who held the office from 1925 to

New materials of all kinds from insecticides to hormones must be tested on a small scale before they are recommended by Fruit Research Division. Small trees and hand spraying are best for this work.



The new concept of centre leader trees on semi-dwarfing stocks has aroused much interest. Here young trees are being trained to the desired pyramid shape.



In working out control measures it is important for the scientist to know when the spores of tree diseases are released. The spore trap set up in a tree killed by silver leaf takes a continuous record of spores in the air near fructifications.



Bulk-harvesting methods are used for pears as well as apples. These pear trees, on a Hastings orchard, were planted at the turn of the century and have yielded up to forty bushels a tree. Some of the trees are thirty feet in diameter.

1946, and Mr T. F. A. Archer, from 1950 to 1966. The other Nelson directors over the fifty years were Messrs A. P. Allport, F. E. Nottage, E. B. Izard, J. Allan, D. Haining, J. Dicker and L. B. Robinson. Since the Federation branch office was opened at Nelson in 1926 the branch managers have been Messrs D. Neal, C. G. Wilkinson, J. H. Brunt and S. J. Riach. The sub-branch manager at Motueka is Mr N. H. Fraser.

Marlborough has two well-defined orchard areas, the main plantings being to the north, alongside the Wairau River, and the other area on the south side close by the Wither Hills. The southern area has a better type of soil but has always suffered severely from dryness. Previously it did not appear possible to irrigate the southern orchards, but three of the growers in this area have recently managed to get a reasonable supply of water and their production should improve considerably. The north (Rapaura) side, all irrigated, comprises thirteen orchards, twelve of which were planted together in 1914 and 1915. The trees for those orchards all came from a nursery at Rangiora and the whole planting was supervised by a former Federation director, Mr J. W. T. Doggett. "The area was thick with rabbits which ate down the *pinus* wind-breaks. This meant fencing the areas off and cleaning the rabbits out," recalls Mr Doggett. "Then the bronze beetle cleaned up the foliage on the young fruit trees, and in an effort to save the trees it was necessary to water each one regularly for a long period. This meant taking horse and sledge to the river, filling two barrels by bucket and in turn decanting the water from barrels to trees by bucket. The ration was half-a-bucket to a tree." Most of the trees survived the ordeal and are still in healthy condition.

Of the original orchards on the Rapaura side only three—those of the Doggett, Glennie and Ivory families—are still carried on by the family. Mr Doggett mentions that things were so hard in "the good old days" that he gave the whole orchard away just for the cost of the rates for a number of years.

In 1950 a large new area at Blenheim was to have been planted for ex-servicemen under the Rehabilitation scheme, but after much organising had been done it was decided not to go ahead with it. Only one block was planted up, and this is the only new orchard planted in the Marlborough district since before 1920, though extensions have been made to other orchards. Had the Rehabilitation plan gone ahead it would have added 280 acres to the existing 400 acres of orchard and would have meant a very considerable increase in Marlborough's output of pip fruit. There

was understandable disappointment locally when the scheme was dropped.

Marlborough has had four Federation directors: Messrs T. H. Torode, H. Robinson, J. W. T. Doggett and V. G. Glennie. The Federation's branch manager is Mr A. E. Smale.

Though coming fifth, after Nelson, Hawke's Bay, Auckland and Otago, in fruit production in New Zealand today, Canterbury nevertheless pioneered the industry in some important respects. The first export of New Zealand fruit was sent from Christchurch to Chile in 1888, and the first export to the United Kingdom was also from Christchurch, in the 1890s.

There have been some great fruitgrowing families in Canterbury over the years, among them the Sissons of Papanui, the Banfields of Rangiora (and earlier of Riwaka), the Turners of Woolston, the Freemans of Papanui, the Steads of Ouruhia and the Butchers of Timaru. The Sisson family's link with fruitgrowing in Canterbury goes back to soon after the arrival of Mr Francis Sisson and his wife at Lyttelton in 1855, when they settled on twenty-six acres at Papanui and established a market garden and mixed orchard. Mr Sisson propagated the original Lord Wolseley tree there more than a century ago. His son Frank introduced to New Zealand in 1905 the use of arsenate of lead to combat codling moth and in 1910 built the country's first privately-owned cool store. The Sisson family was prominent also in the formation of the Canterbury Fruitgrowers' Association in 1886. Originally the association was known as the N.Z. Fruitgrowers' Association, but as other fruitgrowers' associations came into being in the Colony the "N.Z." was dropped and "Canterbury" was substituted. Francis Sisson, his son Frank and grandson Fred were all president of the association and great-grandson Frank has carried on the tradition. Fred Sisson was also a director of the Federation from 1931 to 1940. The Sisson family has been actively engaged in fruitgrowing in the same district for more than 110 years, which must certainly be a New Zealand record.

By 1900 there were 1,200 acres in fruit in Canterbury and the province's orchard area was greatly extended by the planting boom of 1910 to 1920 which resulted from the wide publicity given to fruitgrowing as a sound and profitable investment. A major new fruitgrowing area came into being at Loburn, in North Canterbury, during the planting boom, Mr E. Ivory, of Ivory's Nurseries, Rangiora, initiating large-scale orchard development there in 1913. Large-scale plantings of both pip fruit and berries

were carried out at Waimate, in South Canterbury, and the area in orchard was greatly increased in the Horotane-Heathcote Valley and other parts of the Port Hills at Christchurch, which had shown that they were admirably suited to the growing of stone fruit. By 1925 fruit plantings in Canterbury had reached their peak, at 2,632 acres, and thereafter a steady decline set in, at first mainly through the pulling out of trees in uneconomic units and later as the result of urban spread. The encroachment of housing has reduced the fruit acreage in Papanui especially. There has been a recent trend, however, to establish new orchards further away from the city, and in particular in the Harewood and Ouruhia districts.

Mr J. Oxley, of Loburn, has made a useful contribution to the industry with his inventions. A son of one of Loburn's original owners, he made his first grader in 1924 and then proceeded to make a variety of orchard jobs easier by producing graders, tanks, sprayers, conveyors and other equipment.

Canterbury today produces only about half of its own fruit requirements, though it also makes a small contribution to export in certain varieties. Before adequate local cool storage was provided it was often necessary for fruit to be railed to cool stores at Bluff and held there until required in Christchurch later in the year. This caused considerable wastage from deterioration of the fruit through excessive transport. Adequate facilities in this respect, however, are now available.

Canterbury today has some 800 acres in orchard and about 130 fruitgrowers. The average holding, therefore, is about six acres.

The Federation's Canterbury directors over the years have been Messrs J. Longton (also Federation president), F. W. Cone, F. W. Sisson, W. G. Mottram and H. R. Sampson, and the Canterbury branch managers have been Messrs C. G. Wilkinson, G. Todd, A. C. Greer, C. R. Macleod, J. A. Deyell and P. S. Marshall.

Central Otago's special and important place in New Zealand fruitgrowing owes much to its difference from the other districts. This difference in turn derives largely from climatic factors. Its severe winters and hot summers give it a distinct advantage in the production of stone fruits, with the result that four-fifths of New Zealand's apricot trees, two-thirds of the nectarine trees, two-thirds of the cherry trees and most of the European plum trees grow in Central Otago. The district also has about a quarter of the country's peach trees, a sixth of the pear trees and a tenth of

the apple trees. The "continental" climate also poses some major problems, especially in the form of frequent severe frosts which keep orchardists very much on the alert at the dangerous times of the year. The low rainfall, averaging only about thirteen inches a year at Alexandra, makes adequate irrigation facilities essential for the cultivation of fruit in Central Otago, but it also means that disease control is of less importance there than in districts with a high rainfall.

Gold was the magnet that attracted people to Central Otago just over a hundred years ago, and the first fruitgrowing in the district owed its origins to the men and women who preferred to stay on when alluvial goldmining declined. The isolation from markets in the main centres and the transport difficulty retarded the progress of fruitgrowing as a local industry, but with the completion of the railway to Alexandra in 1906, and the activities of land speculators, a rapid expansion took place and by 1916 the area in orchard had risen to more than 2,000 acres at Alexandra and 1,700 acres at Roxburgh. Some of the areas planted during the boom period of 1914-16, however, proved unsuitable for fruitgrowing, either because they were subject to damaging frosts or because they lacked adequate irrigation facilities. Some 40,000 trees were planted at Fruitlands, in a small but elevated basin about eight miles south of Alexandra, but the severe frosts proved too much for the trees and all that remains there today are a few trees around the homesteads of the farms to which the district reverted. Plantings decreased up to the end of the second world war, but since then there has been an increase, and the acreage in fruit now seems to have become stabilised at about 2,700 acres. The Alexandra district has some 190 growers and the Roxburgh district about 100. The average holding is slightly larger at Roxburgh.

A notable contribution to the advancement of the industry in Central Otago was made in the second and third decades of this century by Mr R. Kinnaird who sought perfection in horticultural methods. His orchard was, and still is (under the management of his son and grandson) an outstanding example of a small orchard area worked to its full capacity. It was during that period also that Mr A. Taylor, who ran the orchard of his father-in-law, Mr R. Dawson, at Conroy's Gully, saw the possibilities of the Dawson cherry as well as other varieties of firm cherries, and much of the success of cherry growing in Central Otago is due to his work. Mr Taylor, at eighty-seven years of age, is still an active orchardist on his small holding at Alexandra.

A series of severe frosts in the spring of 1926 wiped out the bulk of Central Otago's fruit crop, and the open pot which burnt fuel oil was tried with success the following season. Those experiments prompted a few growers to install enough fire pots to protect parts of their orchards, but it was not until disastrous spring frosts struck in 1933 that fire pots became standard equipment on most orchards. This method does not offer adequate protection, however, against an extremely severe frost such as Central Otago experienced in September 1953. Growers worked and fought in the slush, smoke and oil to try to save what they could of their fruit, but the odds against them were too great. The damage to stone-fruit crops in the district was the worst within living memory. Fortunately visitations of that severity are very rare. Today a few Central Otago orchardists use water sprinklers for frost protection but most growers still rely on fire pots.

Isolation does not pose the major problem it once did in the transporting of fruit from Central Otago to the markets outside, but improved methods of transport are still sought for such a highly perishable commodity as stone fruit. As the late Mr J. Hainsworth, the Federation's Otago director, pointed out in his submissions to the Committee of Inquiry into the Transport of Fresh Fruit and Vegetables in February 1966, "to make this highly perishable and tender fruit available to the consumer in really good condition, speedy and efficient transport is essential, with full facilities for careful handling. The number of handlings must be reduced to a minimum and the cost must be kept to a level which keeps the price of the fruit to a level acceptable to the consumer."

Otago's total fruit production, which is approaching 900,000 bushels, comprises slightly more stone fruit than pip fruit. The production of apricots, at a quarter of a million bushels, makes up about half of the stone-fruit total.

Birds present a problem to fruitgrowers everywhere, but especially in Central Otago. At one time the birds ate only cherries, pears and berry fruits, but over the last few years they have acquired a taste for most fruits and have also caused extensive damage to fruit buds. To keep the birds away, growers have been quick to adopt all kinds of devices, some of which have proved more entertaining than successful. A common method is a line of clanging tins operated by hand or mechanically. Possibly the most ingenious method is a walking scarecrow

developed by the Bennetts family of Coal Creek, Roxburgh. The scarecrow is suspended on an endless wire which revolves round two bicycle wheels driven by a motor. Mr E. Hawkins, manager of the research orchard at Earnsleugh, has also produced some ingenious methods, incorporating net-type bird traps, balloons and reflector objects that move in the wind, and he has experimented with ultrasonic sound using bird distress calls, and with carbite bangers. Mr L. Jackson, who owns an orchard in the borough of Alexandra, used to keep birds away from his cherry crop by shooting with shot guns, but this did not please the neighbours. He then set up loudspeakers and played music, but this too proved at least as annoying to the local people as to the birds. Carbite bangers were then tried, but this also upset the neighbours. In desperation, Mr Jackson put his five acres of cherries under wire-netting, and he is reputed to have the biggest wire-netting enclosure in the Southern Hemisphere. Today, where netting houses have not been built, shot guns, bird poisoning and carbite bangers are the main methods used to control bird damage on fruit crops in Central Otago.

The position of Federation director for Otago has been filled over the years by Messrs J. Bennetts, A. Davidson, H. Turner, R. Kinnaird, J. H. George, J. Hainsworth and J. R. Waigth. The Federation's branch managers have been Messrs G. A. Charlton, S. J. Riach, G. A. Dutton and B. C. Lindsay. The sub-branch manager at Alexandra is Mr I. R. Dwyer.

6

CITRUS AND SUBTROPICAL FRUITS

A RELATIVELY SMALL but growing citrus industry, closely associated with the production of certain other subtropical fruits, is established at Kerikeri, Auckland, Tauranga and Te Puke in the Bay of Plenty, and at Gisborne. Commercial production of these fruits is practically confined to those parts of the sheltered and relatively frost-free eastern littoral of Auckland province, as New Zealand is situated climatically at the very southern limit for their successful culture.

Many kinds and varieties of citrus and other subtropical fruits have been introduced into New Zealand since Mrs James Kemp brought a few sweet orange pips with her from Sydney when she arrived with a missionary party at Kerikeri in 1818, but only a few have proved satisfactory or shown promise in New Zealand conditions. The equable insular climate, with rather warm winters but also rather cool summers, has posed the main problem. Lack of summer heat is usually reflected in the slow growth, poor yields and unsatisfactory eating quality of many of those fruits in New Zealand. Winter frosts, however, are not so great a hazard in New Zealand as they are in better-known citrus areas of the world.

The main kinds of citrus grown in New Zealand are standard lemons, Meyer lemons, so-called New Zealand grapefruit, Wheeny grapefruit, sweet oranges, mandarins and tangelos (mandarin and grapefruit hybrids). New Zealand grapefruit is a natural hybrid which has Seville, or sour, orange characteristics and, like lemons, it requires less total available heat throughout the growing season than other citrus for satisfactory growth and cropping. This explains why citrus growing in New Zealand has been largely concerned in the past with lemons and New Zealand grapefruit. True grapefruits have a very high heat requirement and do not succeed in New Zealand. The Wheeny grapefruit, although more like true grapefruit, is also a hybrid, possibly with the lemon or sour orange, and this probably accounts for its adaptability to the New Zealand climate. Oranges and mandarins are more frost-resistant than lemons but require much more heat during the growing sea-

son for satisfactory growth, yields and fruit quality. No orange or mandarin variety has yet been found an unqualified success in New Zealand, but by careful selection of variety and rootstock satisfactory results are being obtained.

Successful use of *poncirus trifoliata* as a rootstock has made it possible to produce consistently high-quality oranges and mandarins in the marginal climate conditions, and this, together with the scope for development and the good prices offering, has encouraged the planting of these fruits in recent years. This trend is expected to continue, and as the many new orange, mandarin and tangelo trees mature, their yields should increase very considerably and could boost total citrus yields from some 350,000 bushels to 500,000 bushels within ten years. Production of this order would go far toward satisfying much of New Zealand's citrus requirements for some months each year.

In the three planting seasons from 1963 to 1965 the total number of citrus trees in commercial orchards increased by 37 per cent to more than 232,000 trees. This increase, as for some years past, was very largely due to expansion of orange, mandarin and tangelo plantings but there were also increases in areas of lemons and grapefruit. The progress made with plantings of orange, mandarin and tangelo trees has been such that these kinds of citrus trees now exceed the total of grapefruit and lemon trees, which for so long have formed the mainstay of the New Zealand industry and still make up the great bulk of this country's commercial citrus production.

There were 685 growers of citrus fruits in 1965 and their citrus orchards totalled 1,520 acres. Their total production was 358,400 bushels. The Bay of Plenty, with 82,000 bushels of New Zealand grapefruit, 82,900 bushels of standard lemons and comparatively small quantities of the other citrus fruits, contributed more than half of the total production. The great bulk of the citrus production near Auckland was of New Zealand grapefruit, while Kerikeri contributed more than half of the oranges. Gisborne's main contribution was in standard lemons.

Urban expansion in Auckland and Tauranga over the past ten years has caused a substantial loss of grapefruit and lemon trees, but renewed interest in planting grapefruit has developed in the last two seasons. This trend seems likely to expand and should ensure adequate production of these fruits in the future, not only for fresh fruit consumption but also for juice processing. Moreover, future production from these new trees can be expected to provide high-quality fruit, as the trend is toward greater use of

the trifoliata rootstock for grapefruit trees as well as for oranges and mandarins.

New plantings of lemons are continuing at a steady rate each year and an annual production of 130,000 cases, which was predicted at the time of a survey of New Zealand citrus orchards in 1963, has now almost been reached. Further increases in yields of lemons can be expected in the future and should be more than adequate for fresh fruit requirements but are likely to prove inadequate for supplying a growing demand by the processing industry for lemon juice.

Orange plantings have now reached a total of almost 100,000 trees, and Mr W. A. Fletcher, horticultural advisory officer (citrus) of the Department of Agriculture, considers predictions of production of 56,000 bushels by 1968 and 100,000 bushels by 1973 should easily be attained. In fact, with the trend to plant these varieties increasing rapidly each year, he says, even more substantial increases in production can be expected. A similar position exists with mandarins, and the present production of these fruits could double within five years and double again within ten years, to at least 50,000 bushels by about 1976. Interest in tangelos, especially "Seminole," is increasing very rapidly. Since the 1963 survey the number of tangelo trees has increased by 276 per cent to 17,000 trees. The production of tangelos may reach 7,000 or 8,000 bushels in five years and 20,000 bushels in ten years.

The combined production of oranges, mandarins and tangelos could within ten years reach 170,000 bushels, which is equivalent to the present production of grapefruit in New Zealand. Such a production would make a large contribution to New Zealand's requirements of these fruits over the period from July to October.

Growers have gone ahead with all this increased planting confident in the knowledge that good-quality fruit can be produced in New Zealand. This has been shown by composition studies and quality assessments of New Zealand-grown oranges, conducted over the past ten years. Promising results were obtained with certain varieties, and especially with *poncirus trifoliata* as a rootstock, which appeared to be better suited to New Zealand's relatively cool growing conditions. The findings confirmed that the best quality oranges grown in New Zealand are generally the navels, which are the early-maturing varieties. "It became obvious from this study that sweet oranges produced in New Zealand were often harvested before they were properly ripe and at best when they were only at minimum maturity," said Mr Fletcher. "Rarely was fruit ever allowed to ripen on the tree till it reached optimum

maturity and most pleasant flavour. More care with choosing the proper harvesting date over recent seasons, and especially in 1963 when a new system of grading oranges on internal quality was introduced, has greatly improved the quality of New Zealand-grown oranges reaching the market." The industry voluntarily accepted the grading standards which are practically on a par with those of other citrus-growing countries. This step resulted in hundreds of old-type citrus trees being uprooted and replaced with sweet orange trees all growing on trifoliata stock from selected buds.

An important decision in the organisation of New Zealand's citrus industry was made in July 1936 when a meeting of citrus growers, held at Wellington, carried a resolution approving of the formation of a permanent Citrus Council which would comprise representatives from the four citrus-growing districts. It was not until 1938, when Mr A. R. Emanuel, of Kerikeri, was appointed to the directorate of the Federation, however, that some definite steps were taken to draft the rules and constitution of the New Zealand Citrus Council. Mr Emanuel regarded the new organisation as "his baby" and nursed it through the preliminary stages. In 1941 a meeting of citrus representatives was called to discuss the basis of representation and future membership. In view of the close link between citrus growers and the Federation, it was thought desirable that the Auckland branch manager of the Federation, Mr S. M. Conway, should undertake the responsibility of secretary of the Council. This he did and he still has that responsibility. At the first annual conference of the Council, held in 1942, citrus representatives felt that there was no longer any need for a citrus grower to attend the Federation's Dominion Conference, as the Council was now in a position to handle its own particular problems. Its link with the Federation was maintained through the secretaryship.

During the war New Zealand grapefruit came into its own, for with no imported oranges there was a very keen demand for any citrus that could be made available from local orchards. Grapefruit sales hit ceiling prices and there was the inevitable scramble to secure trees. Plantings were increased, and by 1949 there were more than 50,000 trees in commercial orchards. It was fairly obvious, however, that New Zealand would not be able to absorb the prospective crop once the normal importation of oranges was resumed. The earlier crop estimates were not reached, due no doubt to the comparatively low prices for grapefruit, but there are still a number of substantial grapefruit holdings. The

Council has on several occasions been asked to revive a marketing scheme for New Zealand grapefruit, but the growers have not reached agreement on such a scheme. The main problem is the difficulty of producing fruit of uniform internal quality.

In response to requests from the Council for better and more adequate supplies of citrus trees, the Federation directors decided in 1958 to establish a nursery at Kerikeri for this purpose. The nursery made its first contribution to the industry with the delivery of 3,000 young trees in the 1962 planting season. Much thought and hard work were put into the production of first-class stock. Trifoliata seed imported from Australia and sweet-orange seed from the Cook Islands were sown in well-prepared beds and given every chance to grow into sturdy stock plants for setting out in the nursery rows. The sweet-orange seeds provided stocks for lemon trees. The citrus nursery has now supplied just on 50,000 citrus trees to help meet the demand for trees on trifoliata stock, and its contribution has been much appreciated by citrus growers. The development of the industry has been accelerated in no small measure by the citrus nursery.

At the Citrus Council conference in 1964 the Federation president, Mr Archer, made reference to the fact that the citrus industry after years of effort had discovered that it had made a mistake, not in trying to grow citrus fruit in New Zealand but in trying to grow citrus of the wrong varieties, on the wrong stocks and, in the early days, with lack of experience and limited guidance. "But having found they were off course," he said, "growers had the heart and the courage, at the cost of much money and hard work, to set about putting their house in order." Mr Archer mentioned also that the pip-fruit industry was realising that it had made a big mistake in the early days when it allowed each individual grower to build and equip his own packing shed at a cost of hundreds, sometimes thousands of pounds. "Marketing of pip fruit has become so complex that today we realise that a few large co-operative sheds, particularly in the major pip-fruit districts, could have saved us a lot of money and given us a more uniform pack," he said. He advised orange growers to watch this position very carefully as their crop increased. The benefits of co-operative central sheds were enormous, he said, and it was impossible to overemphasise the value of modern machinery in keeping down costs, as well as in ensuring the quality and grades necessary to meet ever-increasing competition.

A major contribution to the advancement of New Zealand's citrus industry over recent years has been made by the citriculturist,

Mr Fletcher, who was first appointed to the position in 1951. Later he was transferred to other duties but his value to the citrus industry was such that it was made possible for him to resume as citriculturist, and citrus growers were very pleased again to have his advice and assistance.

On the marketing side, too, most of today's growers are much better provided for than were the citrus growers of earlier years who had no option but to market their own fruit. Fifty years ago the process of curing citrus fruit was carried out by individual growers. But about the end of the first world war Turners and Growers Limited, of Auckland, developed the handling and curing of lemons from the growers for the markets and proprietary marts. One of that company's employees, Mr E. H. Becroft, had been to America and had gained a great deal of experience in the curing of lemons and he was able to put this experience to good use on his return, with the result that the company was responsible for getting the first well-cured New Zealand lemons on the market. In Tauranga a growers' co-operative organisation was formed in the late 1920s and commenced curing and packing lemons in that district. Other private packing houses also started packing lemons, and a number of growers cured and packed on their own account. In 1939, at the request of growers, the Government, through its Internal Marketing Division, took over the various packing sheds and control of the packing and distribution of all New Zealand-grown lemons with the exception of Meyers. During the war years standard lemons were subject to price control whereas Meyers were not, and this led to a quite considerable development of Meyers and a slowing down of plantings in standard lemons. The Government continued to pack standards through the Department of Agriculture after the Internal Marketing Division was merged in that department, but in 1953 the department advised the citrus growers' organisation that it intended to discontinue the packing and distribution of fruit that year.

About that time Fruit Distributors Limited, a company with the wholesale fruit merchants throughout New Zealand as its shareholders, had put before the orange growers a voluntary scheme whereby Fruit Distributors agreed to purchase at comparatively high prices the individual growers' crops of New Zealand oranges, provided the fruit conformed to certain minimum standards. The guaranteed-purchase-price arrangement was accepted by a large number of growers, and it was proposed also that Fruit Distributors handle the New Zealand-grown lemons as well as the oranges. The Citrus Council and

Fruit Distributors made an arrangement, subject to confirmation by the growers, that the company would purchase standard lemons delivered to the factories at Kerikeri, Auckland, Tauranga and Gisborne on a sliding scale of prices, according to the date of delivery. Before this scheme was accepted by the growers, Fruit Distributors was asked to handle the Meyers as well, and after some hesitation the company finally agreed to do so. For the first year of the scheme the packing of the fruit was carried out by the Department of Agriculture through the factories it then owned. The New Zealand Citrus Council then requested the Government, under the Primary Products Marketing Act, to allow the Council to set up an organisation with regulations empowering an authority to purchase all the New Zealand-grown lemons, Meyers and sweet oranges and to allow the authority to purchase from the Government the factories which it had used for citrus fruit. A poll of citrus growers disclosed that a substantial majority of growers wanted the statutory powers to be given to a growers' organisation, and the Citrus Marketing Authority was established. Since that time Fruit Distributors has continued to purchase all the New Zealand sweet oranges and standard and Meyer lemons at fixed prices for certain grades delivered to the factory. The Citrus Marketing Authority has packed the fruit from its stocks to the company's requirements and the company has distributed this fruit throughout New Zealand. The fact that the fruit has been paid for as soon as it has been graded at the Authority's sheds has ensured the financial stability of the industry and of the Authority. When heavy surpluses of lemons were available in the mid-1950s Fruit Distributors exported some shipments to England, but local costs and shipping freights were such that normal competition on the United Kingdom market could not be met by New Zealand growers.

Anticipating a considerably increased volume of oranges, the Citrus Marketing Authority recently decided to equip its various packing houses with modern machinery, and today the Kerikeri, Tauranga and Gisborne packing houses are operating with the very latest in washing, sterilising, waxing, polishing and grading equipment. This new plant is turning out a product that looks better and keeps better. The Tauranga packing house also has a cold store.

The Authority sells lemon juice in bulk to the bottlers for soft drinks and cordials, and lemon peel, in brine to preserve it, to the candy-peel makers. Basically, the fruit that is below marketable grade is processed in this way.

Five of the Citrus Marketing Authority's members are nominees of the New Zealand Citrus Council and represent the producers, and the sixth is appointed by the Minister of Agriculture and represents the consumers. The Authority's chairman is Mr T. R. Hunt, of Tauranga, and its general manager is Mr B. C. Clark.

Many of the subtropical fruits other than citrus are often grown as novelties in home gardens, but commercial production is concerned mainly with two kinds of fruit which are not cultivated on a large commercial scale anywhere else in the world, not even in their countries of origin. These fruits are the tree tomato, which is a native of Brazil and Peru, and the Chinese gooseberry which originated in the Yangtse Valley in China.

The rapid expansion of Chinese gooseberry plantings of a few years ago seems to have slowed down over the past two or three years, but with many young vines still coming into heavier bearing production of these fruits should increase to over 1,400 tons within two or three years and continue to expand steadily. The Federation pioneered the export of Chinese gooseberries in 1953 when it sent overseas about twenty cases, or 110 pounds. Since then the quantities of Chinese gooseberries exported to the United Kingdom, Australia and North America has increased steadily, and in 1966 the Federation arranged the export of more than 100 tons. Chinese gooseberries have been exported to Japan, but at the moment shipping difficulties preclude any major developments in that area. The same applies to Hong Kong and Singapore. Turners and Growers Limited have also been interested in shipping the fruit. Prospects for further substantial expansion of the overseas outlets for this fruit are good and it is hoped that much larger quantities will earn overseas exchange in the future.

Chinese gooseberries do not carry well when stowed with apples, and it is therefore necessary to secure special refrigerated accommodation exclusively for this fruit. Otherwise it is not possible to ship it in any large quantities. This shipping problem is being overcome by the use of activated carbon, and the Auckland branch of the Federation is carrying out trials to satisfy itself on the best technique to adopt. In this work the branch is co-operating with the Fruit Research Division of the Department of Scientific and Industrial Research.

The Harry and David "Fruit of the Month" Club purchases Chinese gooseberries from the Federation each year and distri-

butes them in gift cartons all over the United States. About 15,000 cartons, specially prepared and each containing about three or four pounds of fruit, are sent to various homes. This arrangement started in 1964 and it is hoped that it will continue for a number of years yet. "It's a very satisfactory deal as far as we are concerned," said the Federation's Auckland branch manager, Mr S. M. Conway, who has been largely responsible for promoting the export of these subtropical fruits.

Chinese gooseberries are much more versatile than are tree tomatoes, although consumption of the latter fruit is greater in New Zealand at present. The plantings and production of tree tomatoes continue to expand rapidly and there could be a danger of over-production of this fruit. Research is under way to seek a satisfactory processing outlet for tree tomatoes to help stabilise the economy of the industry. Several attempts have been made at processing this fruit but most of them were abandoned either because there was not a sufficient volume or the demand for the finished product did not justify a continuance of the processing of the fruit. Thus far, tree tomatoes have not met with any great success on export markets, and in an endeavour to promote the fruit a move is afoot to change its name to "tamarillo" for both local and export markets. Firms marketing tree tomatoes overseas have found this name misleading as it is confused with the ordinary ("pepper and salt") tomato. The new name will probably be adopted for the 1967 marketing season.

There were 371 growers producing Chinese gooseberries, tree tomatoes and passionfruit in 1965 and 648 acres were devoted to these fruits. The bulk of production of all three is to be found in the Bay of Plenty. Feijoas and avocados are the remaining tropical fruits grown commercially in New Zealand, but neither is of great significance. There is only one substantial orchard of avocados.

Perhaps the major problem facing the citrus and subtropical fruit industry in New Zealand today is that many of the orchards are too small to be economic. Mr Fletcher emphasises that if the industry is to expand toward a sounder economy, larger orchard units are necessary. It is pleasing to note that a trend is developing in this direction. The major cultural problem, as Mr Fletcher sees it, is to improve yields and quality of fruit under New Zealand's climatic and soil conditions. This problem is being tackled by research into varieties, rootstocks, plant nutrition, pest and disease control and storage and handling, but

unfortunately because of the relatively small size of the industry, facilities for such research on citrus and subtropical fruits in this country are very limited.



Each of New Zealand's six main fruitgrowing districts is represented on the directorate of the New Zealand Fruitgrowers' Federation. Pictured at a meeting of the directors in June 1966 are (from left): Messrs J. R. Waigh (Otago), T. F. A. Archer, president (Nelson), H. R. Sampson (Canterbury), B. R. McLaren (secretary), H. Osborne (Hawke's Bay) and L. W. Smith (Auckland). Mr V. G. Glennie (Marlborough), the sixth director, was away ill when this photograph was taken.



Equipment and plant for fruitgrowers are made at the Federation's manufacturing division at Nelson. The production includes high-capacity graders, sorting tables, elevators, bulk-harvesting conveyors and hoppers, trailers and so on.



Spraying is the most important seasonal activity for the orchardist and he is fortunate to have first-class facilities now available for this work. This Konig sprayer has proved very suitable for the larger orchards.



Lovely trees and grounds round the house are a feature of many New Zealand orchards. This home at Greytown is owned by Mr H. E. Napier who was a key man in the Federation, as secretary and general manager, from 1922 to 1934. The house was built by Mr J. H. Kidd who propagated the apple that is well known in New Zealand and overseas as Kidd's Orange Red.

7

SCIENCE APPLIED TO FRUITGROWING

by J. D. Atkinson, Fruit Research Division,
Department of Scientific and Industrial Research,
Auckland.

FOR THE WHOLE OF ITS FIFTY YEARS there has been a close link between the New Zealand Fruitgrowers' Federation and scientific research. Foundation members were plagued with most of the diseases and pests we know today, but scientific knowledge of disease problems was scanty and there were few weapons with which to fight them. Records of early conferences show that in those days disease control was uppermost in growers' minds. For scientific help they turned both to the Government departments and to the newly-formed Cawthron Institute. Between them these organisations carried out a large amount of research for the industry. Many men contributed to the work in varying degree, but the outstanding figure for most of the period was the late Dr G. H. Cunningham. Early in his career Dr Cunningham wrote his first book, *Fungous Diseases of Fruit Trees in New Zealand*, which was published by the Federation in 1925.

Soon after this book appeared Dr Cunningham began collecting a team of plant pathologists and entomologists and led them in a sustained and successful attack on orchard disease problems. Supplementing the main work on diseases, he introduced, with strong Federation support, a uniquely successful scheme for certification of therapeutants. This was designed to protect growers against poor quality and ineffective spray materials. Later he persuaded the Federation to establish its own nursery so that important new rootstocks could be made available quickly. As a direct result New Zealand growers are supplied with trees equal in quality to the world's best. Other men and organisations tackled a wide range of fruit problems, including work at the

Cawthron Institute on orchard fertilisers and importation of insect parasites and the D.S.I.R.'s work on rootstocks and varieties, trace elements, mineral nutrition, cool storage, virus diseases, frost, and application of hormones. Always the Department of Agriculture's advisory officers made sure that useful results from any of these investigations were put into practice quickly.

An observer might well ask whether all this work was justified, and if it was, why is it necessary to continue scientific work with fruit problems on an ever-increasing scale. It is rarely possible to set a monetary value on research, but the changes that have followed the application of science are striking. Most of the major diseases and pests are under control, yields per acre have doubled, wastage on the orchard and in the store has been substantially reduced, and locally-grown apples are available to the public for eleven months of the year. It has been an impressive achievement by growers, scientists and advisory officers, but every advance opens up new problems or new prospects of further improvement, and there is no foreseeable end to the need for scientific help.

A recent example of the problems likely to follow alterations in control measures was the rapid development of *Nectria* canker as a serious apple disease in Auckland. This fungus had been known in northern orchards for thirty years but as only a minor problem. Then it appeared to change its habits and within a few years caused serious loss. Investigation showed that regular copper sprays through autumn, winter, and spring would prevent the fungus from producing spores and give effective control. It is now obvious that the swing away from Bordeaux mixture to newer fungicides had allowed a minor disease to become a major one.

Production is rising rapidly in all deciduous fruitgrowing areas of the world and this is leading to increasing competition on all markets. While good prices are still offered for first-quality fruit, any blemished, poorly-coloured, or bruised lines are not wanted by buyers. This presents a continuing challenge to the grower and his advisers. Somehow the percentage of first-grade fruit must be increased, costs of production reduced, and methods of transport improved, if the New Zealand industry is to survive. This is where science can help both the grower and the Marketing Board, and an extensive research programme directed toward these objectives is in progress today.

During the past twenty years chemists have produced many entirely new insecticides which have revolutionised control of orchard insects. Improvements in the control of many pests were

immediate and spectacular, but unfortunately in a number of cases benefits from a particular chemical were short-lived, as some insects developed resistance with surprising speed. There is a danger that the production of new spray materials may not keep pace with the appearance of resistance in pests such as red mite and leaf roller. Accordingly, while the search for new chemicals continues, attention is also being given to other possible means of control.

A long-term experiment in integrated control of all orchard pests is being carried out in Nelson. This simply means that the natural predators and parasites of harmful insects are encouraged by every known means, while the pests are discouraged by limited use of chemicals, which do not harm beneficial insects, and by any other means that may become available. This integration of biological and chemical control has successfully repressed red mite, leaf hopper, mealy bug, and woolly aphis, but it has not controlled codling moth, leaf roller, or San Jose scale. The next move is importation of new enemies for these three pests, and this work is in progress.

At one time fungous diseases such as black spot, powdery mildew, and brown rot were of such pressing importance that none of the limited research effort could be spared to tackle less obvious diseases such as root rots, silver leaf, stone fruit blast, and the whole range of viruses. Since diseases of the first group have been largely held in check by spraying, those of the second group have assumed greater importance, and much of the present pathological research is concentrated on these. These are the difficult problems of today, and it is clear that they cannot be solved by the traditional approach of protective spraying. The search for some other method of control begins with a detailed study of the causal agent and the host's reaction, because full knowledge may suggest some way of breaking the disease cycle.

In the case of root rots, chemical treatments of soil round diseased trees have not been successful, and attention is now focussed on the possibilities of making conditions less favourable for the fungi by drainage, and of developing rootstocks resistant to attack. As there are no known fungicides that will kill a fungus in living tissues without harming the tree, work on silver leaf is at present concentrated on preventing the parasite from gaining entry. Preliminary results suggest that this may be achieved in part by radical changes in pruning practice.

Bacterial diseases, such as fireblight and stone fruit blast, have defied the efforts of pathologists for a long time. No effective bactericides, safe for summer use on trees, were known

until the discovery of antibiotics. Streptomycin offered some hope for field control of plant bacteria, but it has not yet been possible to develop spray programmes that will effectively control bacterial diseases of orchard trees. In the meantime stone fruit blast is causing a continuing loss of young apricot trees in Central Otago and severely limiting expansion of production in this area. Experiments are now in progress to find out whether it is possible to reduce infection by modifying current orchard practices. At the same time, a long-term breeding project has been started with the object of producing apricot varieties more resistant to this serious disease.

Investigation of virus diseases of tree fruits began in this country some twenty years ago, and over this period eighteen apparently distinct diseases have been recognised. Once an orchard tree is infected with a virus it remains infected for the rest of its life, and no way of effecting a cure has been discovered. But it has been found that spread from tree to tree seldom occurs in the field, except in the case of one serious stone fruit virus. Most tree fruit viruses are spread by the use of infected stocks or scion wood in nurseries. A method, known as heat treatment and tip culture, has been developed for eliminating viruses from the tips of young shoots grown at high temperature. This offered a chance of obtaining virus-free wood of all our stocks and varieties, and current virus research is concentrated on producing nucleus lines of healthy wood. If this programme is successful future trees should start life free from the known viruses. The result will be more vigorous trees, producing heavier crops than can be obtained from existing blocks.

The public's preference for particular varieties of any fruit varies markedly in different countries, and is subject to gradual change. To retain profitable markets fruitgrowers have to meet changing public tastes as best they can, and the scientist can help in this field by selecting or breeding new varieties. One marked trend throughout the world has been the increasing demand for full red rather than striped or blushed apples. This led to a wide search for full red sports of old varieties, comparison of the many strains discovered, and adoption of the best ones for extensive new plantings. It also led to the collection of over one thousand apple varieties from all over the world for comparison with those already widely grown here. As a result five apples, two of them local, have been recommended for new plantings.

At the same time promising new peaches, nectarines, apricots, and citrus have been imported for testing against our standard

varieties and local seedlings. Several of the new peaches are steadily gaining in popularity.

Increasing knowledge of tree physiology and the introduction of new rootstocks have led to radical changes in the whole concept of pruning, and tree shape. Change came slowly, as it was gradually realised that hard cutting delayed fruiting, and reduced total yield. Now, the idea of relatively small, centre leader trees planted in hedgerows has captured the imagination of some growers, and many blocks are being planted in this way, though experiments are far from complete. First results suggest that the new tree shape will bring trees into bearing much earlier than before and that ultimate yield per acre will be increased. Production costs should also be reduced as smaller trees require less time-consuming ladder work.

Apples and pears will keep for only a few weeks at normal air temperatures. Both for export and to extend local sales cool storage is essential, but chilled fruit is subject to many disorders. Two important improvements in storage practice have been made during the past ten years; the first was an effective chemical treatment for superficial scald, and the second was a simple warming technique to prevent core flush. Scald had been a major problem, severely limiting the storage life of important varieties, particularly Granny Smith and Sturmer. If these varieties were held beyond August they were likely to develop the unsightly dark brown blotches of scald, which made them worthless for the fresh-fruit market. For many years a measure of control was obtained by using wraps impregnated with mineral oil, but now the scald problem has been eliminated by the introduction of new anti-oxidants, ethoxyquin and diphenylamine. Using these materials in wraps or as a spray for loose fruit, it is possible to hold Granny Smith and Sturmers well into December with only traces of scald. Losses from this disorder have been eliminated and the selling season extended by a full three months.

An effective control for scald immediately brought core flush into prominence. This is a brown discolouration of the core zone, likely to occur in many apple varieties if stored for several months. Affected fruits appear normal externally, but look unattractive when cut and have an insipid taste. Granny Smiths, treated against scald, are liable to show severe core flush by October. Local research has shown that this disease can be prevented by the simple technique of holding the fruit at an air temperature of 65 deg. F. for forty-eight hours on four occasions during the storage period.

This method is not yet in use, but it is likely to be adopted shortly.

Fruit processing in New Zealand developed into a substantial industry with little help from local research organisations. This situation is now changing rapidly as Government departments and Massey University have moved into this field. First results of this additional research effort are becoming available. It has been demonstrated on a commercial scale that dipping peaches in water held at 122 deg. F. for ten minutes will substantially reduce loss from brown rot in fruit that has to be held for several days during the height of the canning season.

Detailed studies are being made of several unusual fruits grown in this country as the first step in an attempt to develop new products from Chinese gooseberries, tree tomatoes and New Zealand grapefruit. In addition, juices and other fruit products are being concentrated experimentally to test the possibility of developing new products for export.

New Zealanders eat substantial quantities of fresh fruit, but the population is small and if 250,000 bushels of apples in excess of normal requirements have to be sold on this market, glut conditions prevail. To retain a stable local market surplus fruit must be exported or processed. The total crop now exceeds 6,000,000 bushels, about half of which is exported. As shipping space has to be booked several months ahead it is of vital importance to have accurate forecasts of the coming crop. This has been done well by visual inspection for many years, but much depends on the skill of individuals assessing the crop. An attempt is being made to apply modern statistical techniques to the problem of forecasting the size of the apple and pear crop in the belief that it should be possible to develop a more objective method.

Many of the advances made by the fruitgrowing industry of this country were made possible by basic research carried out in other countries. New Zealand science has now progressed to the point where we can contribute to the pool of new knowledge. Important contributions to the understanding of fruit physiology have been made recently in this country. The most spectacular was the discovery of zeatin—the first natural substance stimulating cell division to be isolated from plants. This work was undertaken as part of the attempt to find out why large apples do not store so well as small ones. It is impossible to forecast what effect the discovery will have on fruitgrowing, but it could lead to improved storage quality.

Considerable progress has been made also in studies of the

metabolism of nitrogen and phosphorus within the plant. These are two of the most important nutrients of all fruit trees and a fuller understanding of the way a tree uses them will lead in time to improved fertiliser practice.

It is unwise to attempt any detailed forecasts of scientific developments in the future, as new and unforeseen discoveries are almost certain to change the planning of today. However, there are several trends directly affecting the fruit industry which are certain to stimulate scientific effort, and it is worth mentioning some of these.

In several important overseas markets the standards of quality demanded in fresh fruit are rising steadily. Bruised or poorly-coloured apples are not wanted by buyers, and regulations covering the presence of insect pests in consignments of fruit are becoming rapidly more stringent. These pressures have already led to selection of more highly coloured strains of several apples, to new packages and they may lead to fumigation. A few insects escape the best spray programmes, and subsequent inspections. If these rare survivors are to be eliminated some form of fumigation will have to be developed.

An increasing awareness of the hazards to human health caused by spray residues has already had a considerable impact on primary production in New Zealand. As knowledge increases it is likely that tolerances for chemical residues will be varied and some of them reduced, forcing the development of modified spray programmes.

Breeding for field resistance or tolerance to fungous, bacterial, and virus diseases is almost certain to be intensified. It is no simple matter to breed improved disease resistance into a fruit tree without losing some of its desirable characters, but it seems likely that an increasing effort will be necessary in this field.

It has already been amply demonstrated that insects can develop resistance to many insecticides. Chemical control of insects has been an essential part of horticultural practice for a long period and it will continue for a long time yet. But the threat that various critical pests may become resistant to all known insecticides has stimulated several new approaches to insect control. Work is already in progress overseas on the isolation and synthesis of sex attractants, and on the development of chemicals to induce male sterility. It is probable that this type of research will be undertaken in this country. There is some evidence suggesting that codling moth could be eliminated from a whole country by the sterile male technique, provided every apple, pear and quince tree

outside commercial plantations was destroyed. This seems a most improbable approach to codling control today, but some improvement in the technique may make it a possibility in the future.

Hormones are already widely used for chemical thinning, for prevention of pre-harvest drop, and for weed killing. As knowledge of plant physiology increases there is a strong probability that other ways of controlling growth and cropping will be discovered.

Each of these fields of scientific enquiry calls for a better understanding than we have today of the fruit tree and of its diseases and pests. To meet this need there is likely to be a steady increase in the proportion of our scientific effort devoted to fundamental research.



The Apple and Pear Marketing Board comprises a chairman, two grower members and two Government members. Pictured at a meeting of the Board in June 1966 are (from left): Messrs A. D. Thomson, H. R. Sampson, K. B. Longmore (chairman), W. Benzies, S. D. Sinclair and D. L. Waller (general manager).



To cope with the great amount of detail and the statistical work involved in its operations the Apple and Pear Board has the help of a computer. It is intended to use the computer also on crop forecasts and on comparative overseas market realisations by size groups.



Built on reclaimed land at Port Nelson, the Apple and Pear Board's 160,000-case cool store is so situated that fruit can be loaded directly from store to overseas vessels at McGlashen Quay. Almost one and a half million cases of export fruit were shipped directly from Nelson in 1966.



The use of forklifts and pallets has greatly lessened the handling of individual cases and so minimised the risk of damage to fruit and containers. These facilities have also greatly speeded up the transport of fruit.

These apples being harvested at Thawley Orchards, Mahana, Nelson, were packed in cases at the orchard and taken by road transport to Blenheim. After a short time in cool storage there they were loaded into insulated wagons and taken on by special "fruit train" (pictured below) to Auckland.





Pear canning at the Apple and Pear Board's Nelson factory. The pears are washed and inspected (on left), and trimmed (above) after being cored, peeled and halved. Below, cans are filled with pears.



CAWTHON INSTITUTE RESEARCH

RESEARCH WORKERS at the Cawthron Institute, Nelson, have made a great contribution to New Zealand's fruitgrowing industry. The Institute was founded in 1919 from a bequest for agricultural research, left by Mr Thomas Cawthron of Nelson, and its earliest investigations under its foundation director, Professor (later Sir Thomas) Easterfield, were into urgent problems of the then recently-established apple-export industry. Cawthron workers played a leading part in establishing the fruit-export industry.

About 9,000 acres of apples planted on "Moutere gravel" soil were showing poor development in 1920 and were badly affected by fungous diseases and insect pests. The Institute's soil chemist, Mr (later Sir Theodore) Rigg, worked out a satisfactory orchard manure containing nitrogen, potash and phosphate. Later, under his leadership, others including Dr H. O. Askew, Dr Elsa Kidson and Miss Joyce Watson extended this study and reported unexpected deficiencies of several "trace" elements, and for such investigations the Cawthron Institute soon earned international acclaim. Much of Nelson's poor hill country, as well as horticultural land, was brought into high production.

Dr R. J. Tilyard will long be remembered for his successful introduction in 1921 of the parasite *Aphelinus mali* for controlling woolly aphid in apples. He was succeeded by Dr D. Miller who, until 1956, directed entomological investigations into codling moth, apple leaf hopper, leaf roller, pear midge and a number of problems of other crops.

Dr Kathleen Curtis made significant contributions to the identification and elimination of fungous diseases, especially in fruit and tomatoes, including black spot, mouldy core and eye rot, thereby aiding successful cropping under commercial conditions.

Since defects, such as flesh collapse and internal breakdown, were causing serious losses in apples held in refrigerated land

stores and ships' holds, Mr L. W. Tiller and others carried out practical trials on these problems at the Institute in the mid-1920s. Storage defects were found to be influenced by many factors, including variety of fruit, manurial treatment, orchard practices, as well as temperature and other physical conditions of storage.

Research at the Institute is now restricted to studies in plant nutrition and soils. While problems are concerned with commercial crops, research is directed along fundamental lines.

Bitter pit in apples has interested Cawthron workers for many years. For example, Mr E. T. Chittenden reported in *The Orchardist* of July 1935 that in Cox's Orange there was "a very definite association of high bitter-pit trouble with early picking and a marked reduction of the ailment in later picking," and the smaller sizes showed the least bitter pit after storage. In 1960 Dr Askew, Messrs Chittenden and R. J. Monk and Miss Watson reported results of three seasons' experiments and concluded that calcium deficiency was an important factor in causing bitter pit in Cox's Orange apples. Overseas workers then showed that calcium applied as nitrate (or chloride) was the most effective foliar spray, and as a result this form of foliar spray has been used to reduce bitter pit by orchardists in this country. There are, however, modifying factors, such as climate, growing conditions and competition by other nutrients (notably sodium and potassium), so the Institute has continued investigations in both the field and the laboratory. It has been found that calcium concentrates in the skin and adjacent flesh; and by means of radioactive calcium it has been observed that this element moves very slowly in the tree, and even from a leaf into the nearby maturing apple. The brown bitter substances in the pits are insoluble tannins derived from colourless phenolic astringent substances present in normal apples. Dr J. R. L. Walker is studying their properties and has found that varieties which brown rapidly on injury, such as Delicious and Sturmers, have higher phenolic contents than other varieties, and this can affect their processing.

During the last twenty years yields of glasshouse-grown tomatoes have practically doubled and the quality has greatly improved. As a result of practical studies made by Mr D. J. Stanton and laboratory studies carried out by Dr Kidson, common defects such as cloud (blotchy ripening), blossom-end rot and hard core have practically been eliminated. These Institute workers showed that these defects were caused by imbalances of major nutrients, including water, especially under conditions of rapid growth.

The Institute's agriculture museum is unique, as it displays only the district's natural resources and production. Its exhibits, which include soils, apples and tomatoes, demonstrate improvements resulting from research. The museum attracts more than 3,000 visitors each year.

Over its forty-seven years the Institute has had four directors —Sir Thomas Easterfield, Sir Theodore Rigg, Dr D. Miller and the present director, Dr C. R. Barnicoat. The present chairman of the Cawthon Institute Trust Board is Mr T. F. A. Archer, 1950-66 president of the N.Z. Fruitgrowers' Federation.

9

A MILLION YOUNG TREES

PERHAPS ONE OF THE GREATEST success stories of the Federation is provided by its deciduous-fruit-tree nursery at Levin. Not only has this project been self-supporting financially, but it has also exceeded even the most optimistic predictions of its founders in the service it has been able to render to the fruit industry.

At the end of the second world war the industry was faced with four very self-evident truths. First, as a result of the shortage of labour and manures during the war, orchards generally were in a run-down condition. Very few, if any of the trees that had died during the preceding decade had been replaced. Secondly, production had declined to a serious point, and if that decline continued the position would be reached where the industry would no longer be able to meet New Zealand's own requirements of fruit, let alone supply the export markets which had been established before the war. Thirdly, a tree on Spy rootstock could not be replaced with another on the same stock, and fourthly the few existing nurseries were making little impression on the demand for trees.

The suggestion to establish a Federation fruit-tree nursery was the brain child of the late Dr G. H. Cunningham, then Director of the Plant Diseases Division, Auckland, and no one person directed his energies more to the successful launching of the new project than "the Doc." It was he who selected the site of the Federation's first nursery at Levin, and it was he who recommended the high standards which were then set and which are still maintained in the production of trees. Another person to whom a great measure of credit must go is Mr C. E. Woodhead, who only recently retired from the position of pip-fruit specialist with the Department of Agriculture.

From 1930 onward considerable work had been done by the Department of Scientific and Industrial Research and the Horticulture Division on testing the new Malling rootstocks, both at the

Appleby Research Orchard and on private properties. By 1945 it was clear that the Malling stocks designated MXII and MXVI would produce good trees as replants on old sites. Much of the work of testing the new stocks was done by Mr Woodhead, who at that time was stationed at the Mt. Albert Research Station, Auckland. Up to the establishment of the Levin nursery, however, virtually nothing had been done to bring about the commercial distribution of apple rootstocks that were specially suited to particular localities and conditions. Various nurseries had their favourite, and in many instances quite good, rootstocks but there had been no scientific approach to supplying trees on a range of stocks suitable for a variety of given conditions.

It was largely as a result of the intensive study of rootstocks made by Mr Woodhead that the first four standard rootstocks were adopted by the nursery. Since then others have been added for particular purposes and no doubt more will be added in the future. However, it speaks volumes for the original work put in by Dr Cunningham and his workers that all of the stocks originally chosen are still produced at Levin and are likely to continue as popular stocks for a long time to come. The liaison established in those early days is maintained today, and the nursery management works in very close association with the Fruit Research, the Plant Diseases and the Horticulture Divisions. To all these divisions must go a considerable amount of the credit for the success of this project.

Apple trees, of course, make up only a proportion—although a major proportion—of the fruit trees produced at Levin. Many different kinds of deciduous fruit trees—apple, pear, peach, nectarine, plum, apricot and cherry—are produced there, and fittingly in the Federation's golden jubilee year the nursery has supplied its millionth tree.

First established on a property of nineteen acres in Fairfield Road, Levin, the project quickly outgrew this area, notwithstanding the optimistic report at its original formation that this "would be sufficient land for all requirements." After some years on this area, supplemented by leased ground in various parts of Levin, the Federation in 1956 purchased the lovely property of fifty acres which it now occupies in Queen Street East, Levin. "Glen Lyon" was at that time a stud farm and the loose boxes and other extensive buildings have been very suitable for the work of the nursery. But even fifty acres is really not enough to give the rotational rests which the land needs in order to produce first-class trees. The Federation was therefore fortunate in coming to an arrangement

with Mr J. G. Law, owner of the adjoining property, "Cheslyn Rise," whereby in exchange for the grazing on "Glen Lyon" the Federation has the use of his land for nursery purposes.

Work at the nursery holds a fascination for visitors and also for the regular nurserymen. The production of a fruit tree starts with a rootstock to which the required variety is either budded or grafted. These stocks in the case of apples are produced from stool beds or by cuttings grown under "mist propagation." Peach stocks are grown from seed, and plum from seed or cuttings. Cherry and pear stocks are both produced from seed. Quality checks are made at every point to ensure delivery of the best possible trees.

It is in the field of apples that so much has been done toward producing rootstocks with characteristic qualities to suit certain conditions. All of the stocks used are of English origin, the first having been developed at East Malling Research Station. The range includes, for instance, a very vigorous stock (Malling XII) which is especially suited for replants and for poorer-type soils such as are found on the Moutere hills in the Nelson district. This kind of stock would be far too strong-growing for the much richer soils found in Hawke's Bay, and to meet these conditions a less vigorous stock, Merton 793, is available. There is a range of several stocks to give various degrees of vigour from dwarfing to very vigorous, and these characteristics are transmitted to the varieties with which the stocks are budded or grafted.

No chain is stronger than its weakest link and no tree is better than the bud used to propagate the variety. Thus, the greatest care must be, and is, taken in the selection of budwood. All parent trees from which budwood is to be taken are selected for vigorous growth and type, which must conform with the general standards for that variety. The tree must be strong and healthy and show no signs of disease, particularly virus. Its fruit must in colour, shape, texture and flavour be truly characteristic of the variety. Having met these qualifications, a tree is accepted as a parent from which budwood can be taken. In the final selection of budwood trees the Horticulture Division, the Fruit Research Division and the Plant Diseases Division all play some part to ensure that only top-quality trees are chosen for this purpose. The budding season is February and March.

The life cycle of a nursery tree really begins when the rootstock is planted out about August. The rootstock starts to grow in the spring and is budded the following summer. The bud lies dormant during the winter and begins to shoot away in the spring.

At this stage the parent stock is cut down just above the bud and from then on all growth goes into the bud and thus the new tree is formed. The new tree grows all the summer and the following winter it is ready to be lifted and despatched to an orchard. There it begins a life during which it should produce several hundred cases of fruit.

Good management is essential to the smooth operation of the project, and in this respect the Federation's Levin nursery has been very fortunate. Its first manager, Mr L. Lannie, moved to Levin from the Dunedin City Council reserves department, and when he left to take up a position with the Napier City Council, he was succeeded by Mr W. Tillson, who was an experienced nurseryman and had been with the Levin nursery for some years. Mr Tillson remained as nursery manager until his retirement in 1964 when he was succeeded by the present manager, Mr G. Foxton, who had transferred from the Federation's Roxburgh branch and has been at "Glen Lyon" for five years.

New Zealand fruitgrowers are fortunate in having a nursery of their own with its emphasis on quality production to ensure that they get good trees. They are considerably envied in this respect by many growers in other parts of the world.

10

APPLE AND PEAR MARKETING

NEW ZEALAND'S SYSTEM for the local marketing of apples and pears has no exact parallel in any other country. It is a technique that was evolved by the Marketing Department during the second world war when auction selling had to be abandoned. This technique proved its worth by the manner in which it regulated sales of apples and pears on the local market, and later it was adopted by the Apple and Pear Marketing Board.

In the main fruit markets of the United Kingdom, the Continent and North America, the fruit is sold by wholesalers to jobbers or retailers. In New Zealand the Apple and Pear Board distributes the fruit to wholesalers, according to their ability to sell at ruling prices, and the wholesalers sell to retailers on behalf of the Board and at prices determined by the Board. The Board in this way receives the price the retailer pays, less a selling commission for the wholesaler. This distribution system automatically regulates quantities of apples and pears to each part of New Zealand, according to the requirements of the respective districts. The former consignment system, under which fruit was sold at prices determined by wholesalers in accordance with the demand in their own particular market on a particular day of sale, resulted in wide price variations between markets and from day to day. Under the present system, however, the Board, after duly considering the overall position of supply and demand, fixes prices by variety, grade and size group, and the reactions of each market are under close scrutiny daily, so that prompt adjustments to prices and quantities can be made when this is necessary. Prices are fixed on a real balance of supply and demand. There are no frequent and drastic price fluctuations, and the wholesale and retail trades have become stabilised.

The Board operates under a guarantee, which is based on the

cost of production, and endeavours to obtain this figure plus operating costs and a reasonable margin of profit from the market, at the same time doing everything possible to ensure that the fruit reaches the market in first-class condition. It has a duty to consumers as well as to growers. Over the years the Board has sought to make a profit on the overseas markets, and despite occasional setbacks it had a reserve fund of just on £840,000 after the 1965 season. This was after full provision had been made for depreciation and the sum of £412,000 had been paid out to growers as their share of profits gained in the boom years from 1951 to 1957. The Act provides for the apportioning of profits between the reserve fund and growers after the fund has reached £1,000,000.

Practically all of this reserve fund has been used to improve facilities for the handling and storage of apples and pears, such as new cool stores, forklift trucks and pallets. Much loan capital also has been invested in stores and equipment in the growing districts and at principal distribution points, such as Henderson, near Auckland, which city takes almost one-third of the New Zealand sales. At present the Board's investment in its installations and plant amounts to about £3,000,000. An additional cool store of 130,000-case capacity was completed at Henderson in time for the 1966 season and this has brought the nominal capacity of the nineteen cool stores owned by the Board to 1,419,000 bushel cases.

All this cool storage makes possible the sale of apples on the local market throughout the country for eleven months of the year and so extends the length of the actual harvesting season about three times. The public receives a more regular supply of fruit for a much longer period and the apples and pears it is able to buy are of better quality as a result of the improved facilities.

The Board's operations have not cost the taxpayer one penny, and its administrative costs are very low. In fact, its operating costs add only one farthing to the cost of a pound of apples and pears to the consumer. This works out at not much more than a quarter of the assembly and cool storage costs, a quarter of the merchant's commission and less than one-sixth of the transportation cost, all of which have to be added to the payment made to the grower. About 10d a case for Board overhead can hardly be regarded as excessive when consideration is given to the service the Board provides.

A study of the 1965 apple and pear marketing costs shows that the consumer in New Zealand and overseas paid £12,000,000

for the five million bushels sold by the Board. Of this, retail distribution received about £4,000,000 and wholesale distribution, transport, freight and storage took another £4,000,000. This left £4,000,000 for orchardists, but out of this a further £1,000,000 went in cases and materials. Some £3,000,000, therefore, was left to pay the costs of producing the fruit.

As a trader, the Board has advantages and disadvantages. It is somewhat handicapped by the fact that it has no scope to negotiate on the quantity of fruit it will have to market or on the price. The quantity is governed by the size of the crop, which can fluctuate quite considerably as a result of the weather, and the price is fixed by a cost of production formula. Growers can supply the Board or sell up to two cases a time direct to consumers. Inspectors of the Horticulture Division of the Department of Agriculture decide on whether a grower's submissions to the Board qualify under the official grading regulations. The Board has corresponding advantages, in that its income derived from trading in fruit is exempt from taxation and it has a monopoly on the exports and imports of apples and pears.

Preference is given to the local market when decisions are made each year on the allocation of the harvest between export and local market, as it is the Board's duty to see that there is a plentiful supply of good-quality fruit available to the New Zealand public. But there is a limit to what the Board can sell on the local market at economic prices. This quantity, with New Zealand's present population, is about 2,000,000 bushels, as to it has to be added an unknown quantity—probably more than a million cases—sold by growers direct to consumers. This brings the annual domestic consumption of apples and pears to more than a bushel, or some 40 pounds, per head of population and makes it one of the highest in the world. Whilst the Board is aware of the domestic requirement, however, it is not so well placed in trying to assess accurately some months in advance what the crop will be so that it has time to make the necessary shipping arrangements for the foreign markets and to instruct growers on the special packs and varieties needed for those markets. A variation of six per cent up or down in crop estimates cannot be looked upon as unreasonable, but a quantity of 300,000 bushels can certainly create an over-supply or under-supply of fruit on the local market. When it is found at the close of the harvesting season, in May, that receipts of fruit have fallen below the estimates, as happened in 1965, the Board withdraws fruit from export markets already waiting for it so that the local market will not go short.

That is an unfortunate situation to be in, as loss of more than just goodwill can result when overseas requirements are not fulfilled, but even more serious for the Board is a situation where the crop turns out to be considerably bigger than was earlier estimated, as happened in 1964. That year rains swelled the crop considerably beyond what had been provided for. It was too late to arrange to export the surplus and this had to be absorbed by the local market, with disastrous results for the Board.

Understandably, the Board is anxious to improve the accuracy and reliability of crop forecasting, and to this end it is working in co-operation with the Horticulture Division of the Department of Agriculture and the Department of Scientific and Industrial Research. Probably no other country is so dependent on crop estimating as New Zealand is, with the Board having to take over all the fruit that qualifies under the grades.

The greatly increased crop, and with it Board receipts, of apples and pears in 1966 was an inevitable trend in view of the better cultural practices and, to a certain extent, new plantings over recent years. The crop must continue to increase. Barring adverse climatic influences, it is expected to reach seven million cases in 1967 and eight million by 1972. Though the growing population can be expected to absorb some of this increase, domestic consumption has more or less reached saturation level, and outlets for the increased crop must be found overseas. New Zealand is not the only country increasing its production, however. Crops in all the apple-producing countries have been increasing and rapidly overtaking the demand, with the result that the Board has been experiencing, and can expect more, increased competition on its overseas markets. For this reason, it has done as much or more than any other exporting organisation in recent years to investigate and open new markets throughout the world.

The Board has never failed to look at any new market opportunity that presented itself. Within six weeks of the signing of the New Zealand-Russian Trade Agreement in 1962 it had representatives in Moscow seeking an opportunity to establish a market there. Similarly, several efforts have been made to market New Zealand apples in China, and the Board had hopes of displaying, if not selling, New Zealand apples at the 1966 Canton Trade Fair. Mr H. R. Sampson, deputy chairman of the Board and Canterbury director of the Federation, has picturesquely remarked on more than one occasion that "China could consume the whole New Zealand apple crop in five minutes." Board members and Board staff have been constantly on the go to secure new markets and

this is a continuing business. Their efforts have obviously been fruitful, as the Board has shipped New Zealand produce, including canned fruit, to more than forty countries. In 1965 canned fruit was exported to six countries to which the Board did not export fresh fruit, including Australia and Japan. In 1966 the Board supplied three new markets with fresh fruit—Tahiti, Nigeria and Gibraltar. In addition, a small quantity of pears was air-freighted to Tahiti. Among the countries the Board supplies fruit direct to are Iceland and Greenland. The efforts made to secure overseas markets have been such that if the Board is not selling in any particular country there is a good reason for not doing so.

There is no question about the ability of New Zealand's apples and pears to compete with distinction on the world's markets. This has been proven not only by results but also by the rapid increase in trade visitors from abroad seeking appointment as distributors, or confirmation of the status which they already have. But it is most important also that the fruit is attractively presented and in first-class condition when it reaches overseas markets. For this reason the Board has been devoting considerable attention to the packaging of its apples and pears and to the refrigerated transport of the fruit by ship.

The standard bushel box is rapidly losing its identity as an export container, in favour of traypack cartons and traypack cases. In traypack cartons apples are held in trays moulded to their shape. The cartons are made in two parts, the lid fitting down to give an additional thickness to sides and ends. In traypack cases the conventional wooden box is used, but with the moulded trays inside. Used at the bottom of stacks, particularly in deep ship holds, these containers give greater stability and there is much less risk of the apples being damaged. In 1965 686,500 traypack cartons and 483,000 traypack cases were exported. This represented an increase of more than half-a-million of these packages over the previous year. In view of the insulating effect of fibre-board it was essential that all cartons were pre-cooled before shipment, and this placed a severe strain upon the Board's cool-storage facilities. In addition, there was the limiting factor of the height to which cartons could be stacked, particularly in ships' lower holds. It was decided, therefore, to limit tray cartons to 900,000 in 1966 and ship the balance of the traypacks in wooden traycases. Some 800,000 bushels were shipped in the traypack case, and the remaining 1,200,000 bushels of the record 2,900,000 export were shipped in standard cases. The cardboard containers have been

found to protect the fruit from bruising better than the wooden standard case, though there has been slight bruising even in cardboard containers. These new kinds of packaging increase the New Zealand growers' comparatively high export costs, as the trays, tray cases and cartons cost considerably more than the standard case. The Board in 1965 recovered most but not all of this increase. It had to get from 42s 6d to 45s a case gross before it got its money back from fruit sold overseas in these containers.

Shipboard cooling experiments were started in 1964 when Mr R. W. Foster of the D.S.I.R., Auckland, sailed to Britain on a ship carrying New Zealand fruit and on which were wired some thirty thermocouples. That exercise produced some answers and many questions. In 1965 an effort was made to answer these questions, and what would undoubtedly be the most detailed shipboard fruit temperature monitoring exercise ever carried out from Australia and New Zealand was undertaken. The main experimental work was again carried out by Mr Foster. This time more than 200 thermocouples, with something over eleven miles of thermocouple wire, were used. These shipboard experiments are continuing.

The shipping of fruit overseas poses a problem for the Board not only in connection with the need for temperature control. The actual availability of shipping is a major worry. Were it not for the difficulty in securing shipping, the Board's exports could be increased considerably. More regular shipping services are badly needed, but it is appreciated that shipping companies can hardly be expected to carry pip fruit as a sole cargo to remote parts of the world if doing so means a loss of revenue.

In 1965 the Board, with the shipowners' co-operation, was successful in minimising export loadings through the port of Wellington to a total of only 26,000 cases, compared with 318,000 in 1964 and more than 800,000 five years earlier. A record quantity of 1,230,000 bushels was loaded on to overseas ships at Port Nelson, while a further 298,000 cases were loaded at Picton. In 1966 a new record was set for direct shipping of fruit from Port Nelson. Not only has there been an appreciable saving in freight as a result of this direct shipping, but it has also meant fewer handlings and the consequent arrival of the fruit in better condition at its destination.

The export of apples and pears now earns New Zealand more than £6,000,000 a year in overseas exchange and, with the increasing crop, this figure could be substantially increased in the years

to come. It is making an important contribution to the well-being of the country as well as of the fruit industry.

The Board's apple cannery at Stoke, Nelson, plays an important part in the overall marketing programme, by providing an economical outlet for those apples and pears that are not readily saleable on the fresh fruit markets because of unpopularity or excessive quantities of a variety, lack of colour, poor shape and size. As the Board directs the Nelson growers to submit certain grades and varieties to the cannery, the payment for this fruit is the same as that for the same grades and varieties in other districts, less the cost of packing and packing materials. The actual receipts of fruit at the cannery depend very much on the fresh-fruit marketing operation and the size and out-turn of the crop. In 1965 some 435,000 cases of apples and 36,649 cases of pears were processed at the cannery. The number of cases of apples was well down on that of the previous season, but the quantity of pears was the largest the Board had processed in a season up till then. It was found necessary to have an outlet for the smaller pear and so the cannery developed pear sauce as a counterpart to its apple sauce. Other cannery products are apple-pie filling, apple slices and fruit juices.

Although the general principle is that all apples and pears grown in New Zealand must be sold through the Board or its agents, there are certain exceptions. Besides being able to sell in a maximum of two-case lots direct to the consumer, either by mail order or by sale at the orchard itself, growers are also free to sell to factories. The factory is granted a licence by the Board to purchase specified fruit up to a certain limit and under this licence the factory is free to bargain with any grower. Some growers have apparently not been satisfied, however, with the benefits the Board has brought in stabilising the industry and in giving growers generally an improved standard of living, and have sought to gain an additional advantage by selling fruit illegally to retailers on the "black market." Enforcement, through the courts, of the regulations forbidding this direct sale of apples and pears by orchardists to retailers, aptly described recently by a prominent fruitgrower as "this black market canker," has not been easy for the Board to carry out.

A small minority of growers would like to opt out of their obligations to the Board, but the general consensus of opinion among fruitgrowers is that to allow growers to do so would wreck the orderly pip-fruit marketing scheme that has been built up over

a half-century and would be unlikely to bring any long-term benefit to either grower or consumer.

The Minister of Agriculture, Mr Talboys, told the 1965 Federation conference that much of the criticism of the Board had its origin in no small measure in the number of growers who were taking the advantages without fully discharging their co-operative obligations. "Preferred varieties are going on the market before they can be handled through the necessarily more complicated mechanisms of the Board, and they are selling below the Board's prices, into which have to be built the essential intermediate costs," he said. Mr Talboys' interpretation of the industry's development was that the stability was something the growers wanted permanently and that the service provided by the Board built in the sort of stability they wanted. "I will," he said, "take a lot of convincing that the Board is not the best instrument yet found to perform the functions that were broadly envisaged for that ultimate authority toward which the industry has been groping over the years."

THE INDUSTRY OF TODAY

“**W**E’VE WON THROUGH from those early years of adversity to develop a very sound industry and have the great benefit of three basic organisations: the New Zealand Fruitgrowers’ Federation, the Apple and Pear Board and the Horticulture Division of the Department of Agriculture. On these the present soundness of the industry has been established and will continue to grow.” Mr J. H. Brunt, of Nelson, said this in the course of passing on to the author some of his knowledge of the earlier years of the fruitgrowing industry, especially in the Nelson district where for many years he was the Federation’s branch manager. “It is a matter of sound business practice to support solidly the Apple and Pear Board and the Fruitgrowers’ Federation,” he added. “A big number of the growers in Nelson would say that but for the Federation they would not have won through.”

Mr Brunt has indicated that, along with the Federation and the Board, the Horticulture Division has also been of great value to the industry. Actually, the division is the oldest agency in New Zealand with a dual responsibility to fruitgrowers and to the Government, having been one of the foundation divisions of the Department of Agriculture, under the name of the Division of Orchards and Apiaries, when the department was established in 1892. The Horticulture Division, according to the 1953 Department of Agriculture Act, aims to promote and encourage the development of all phases of the horticultural industries in New Zealand, improve the quality of the products derived from those industries and increase the production of these products, but its current role is primarily an advisory and regulatory one. It carries the results of research to the producer and classifies producer problems into priority lists for the attention of research scientists. This is done through fruit specialists and advisory staff. The division has a total staff of about 130, stationed at twenty-six centres. Seven horticultural superintendencies cover the country

and all field advisory and regulatory officers work under the superintendents. There are six specialists or husbandry officers in fruit and viticulture with New Zealand-wide coverage. The division's problems and responsibilities include preserving and conserving high-quality soils; keeping New Zealand free from serious pests and diseases not already in this country (plant quarantine); internal disease eradication campaigns; maintaining quality standards, especially for export; and the wise use of horticultural chemicals. Attracting and retaining adequate staff has been a major problem for the division over recent years. Graduates in Horticulture from Lincoln and Massey have been too few in number, and many who have chosen the advisory service as their career have been attracted to research. The job of the advisory officer is in many ways more complex than that of the research officer. He needs the ability to interpret and pass on information in a way that the grower is able to understand and apply. It seems likely, too, that in the future he will be called upon more to advise on aspects of management, with a view to boosting exports of New Zealand's primary produce.

Education for the fruitgrowing industry is well catered for at both Lincoln College, University of Canterbury, and Massey University, though greater advantage might be taken of the facilities offering. Lincoln College is introducing a new Diploma course in 1967. In essence, it is intended that all practical work will be done outside the College and that the course in the College will last one and a half academic sessions and will increase in academic level compared with Lincoln's past Diploma. "Entry to this course will be restricted in part to those with three years' secondary education, although we should point out the financial benefits to be gained from a longer stay at high school," says Professor T. M. Morrison. The type of secondary school education that should be taken for a career in the fruit industry is largely a matter of opinion and student ability. Professor Morrison says that where possible a professional course should be followed for both the Degree and the Diploma in Horticulture, as almost exclusively only the descriptive side of the subject is taught in that course. "The Diploma course is the one designed for the student wishing to enter the industry either in growing or in one of the ancillary services," says Professor Morrison. "It offers sufficient science and its application to horticulture, sufficient economics and management, and sufficient background to crop production to enable the practical man to keep abreast of developments in his trade."

One of the important functions of the Department of Horti-

culture at Massey is to create a pool of highly-trained graduates with sufficient flexibility to enable them to choose careers in advisory and extension work, research, teaching and in the producing fields. "It is most important that pupils, teachers and careers advisers should be aware of the large range of careers possible through a degree in Horticultural Science," says Professor J. A. Veale. "Any persons interested in plants should note that positions in Government departments, industry and teaching are available in such divergent areas as Biology, Plant Pathology, Entomology, Soil Science, Genetics and Plant Breeding, Food Technology, Horticultural Economics, Horticultural Production and Management, Plant Physiology and Biochemistry. The fruit industry will be served directly and indirectly by these graduates, but only will the servicing be adequate when this pool of graduates becomes much larger." A one-year specialist Diploma in Orchard Management at Massey is designed specially for the man wishing to become a producer but, should he have the necessary entrance qualification, Professor Veale advises, he should seriously consider taking the degree course. "This is a technological age and specialisation is required along with a sufficient depth of knowledge to enable the graduate to keep up with changes imposed by economic and scientific advances," says the professor.

There is plenty to keep abreast of in the fruitgrowing industry, as it is undergoing continual change, development and progress. New ideas are being applied and cultural methods are changing, fruit handling is becoming increasingly mechanised, many types of new containers are under development, and marketing itself, even with a great co-operative enterprise of this kind, has become highly competitive and requires constant revision of ideas. Though the marketing of pip fruit is the concern of the Apple and Pear Marketing Board, the grower still needs to, and does interest himself keenly in the work of the Board. The stone fruit industry does not have the advantage of an organised marketing system but there have been discussions on forms of standardised gradings and size grouping. The good response to a voluntary advertising levy is evidence of a desire to improve the selling of stone fruit.

Current developments in the grading field include a machine which promises a major revolution in the shed handling of almost every commercial fruit crop. Successful operation of the prototype on Mr A. H. Eddie's orchard at Riwaka during the 1966 season proved that the principle was sound. This new fruit-sizer, which has been developed by the Federation's manufacturing division at Nelson, combines gentleness of handling, accuracy of



Apple-packing competitions are seasonal highlights in the main fruitgrowing districts. Pictured above are the men's open and the women's novice events at the Hawke's Bay Fruitgrowers' Association's biennial apple-packing championships in 1965. Below, a contest is in progress at the 1966 Moutere Hills Fruit Show.





Ingenuity has been a characteristic of many New Zealand orchardists over the years. This thinning and pruning platform was built by Mr A. Kinnaird, of Earnscleugh — Alexandra, who is seated on the tractor.

Waterlogged soil on the property of Mr C. Tucker and his three sons at Tasman has made necessary a major drainage project. Easy work is made of this part of the big undertaking with the aid of a trenching machine.





Field days, at which scientists and horticultural officers pass on information and advice to orchardists, are greatly appreciated by the growers. Poverty Bay growers are here showing keen interest in an address by Dr M. Dye, of Plant Diseases Division, on right, on a J. Wattie Canneries orchard block at Matawhero. Dr Dye was talking on how growers could help to reduce the incidence of silver leaf disease.





Central Otago produces excellent stone fruit, and in recent seasons has successfully exported stone fruit such as this displayed by Joy Murray.

The fine packing house at Robinson Orchards Limited, Mariri, with the latest in graders, is a far cry from the fruitgrowing techniques used when Mr E. W. Robinson started in orcharding in 1912.



grading, and capacity—three factors which have always posed the greatest problems for fruitgrowers. Another intriguing new development, by scientists at the Physics and Engineering Laboratory of the Department of Scientific and Industrial Research at Gracefield, is a machine which can sort apples by colour. This machine works by measuring the amount of red and green light reflected by evenly illuminated apples. As the sizing sensor is a light beam, little handling of the fruit would be necessary during the sorting process. The machine is said to be able to determine colour with greater accuracy and consistency than a human sorter. It is anticipated that it could be made to sort at a rate of four apples a second, which would be fast enough for most orchardists.

The maintenance and the improvement of the quality of his fruit call for the unremitting care and attention of the grower. Trophies are awarded annually in some fruitgrowing districts to encourage improvements in the quality of the fruit. In Nelson, for instance, there is the Brash Cup, presented by Mr J. W. Brash, son of the former Federation president, for annual competition on the basis of the best fruit submitted for export. The particular virtue of this competition lies in the fact that entries are taken at random from fruit which is submitted in the ordinary course for export. It can, therefore, be accepted that all the fruit judged in the competition is a reasonable and random sample of the variety as submitted by the respective growers. In Hawke's Bay there is the Retemeyer Shield for the best presentation of packing, grading and general good quality of fruit during the season. The Bledisloe Cup used to be the premier national trophy, but because of the changing circumstances of export and the diversification of the Board's markets, it was found that the system of judging on the fruit submitted to one member of the London panel was not giving a fair cross-section of the fruit exported from this country. For this reason the United Kingdom panel of brokers felt that the competition should be discontinued. Plans are now under way for this valuable trophy to be competed for in New Zealand on a district basis and thus perpetuate the name of Lord Bledisloe and his very keen and intelligent interest in all forms of agriculture, as well as his abiding regard for New Zealand.

Provision of the best available transport for such a perishable product as fresh fruit is a matter of vital importance to the industry. This was recognised by the Government when it set up an inquiry into the transport of fresh fruit and vegetables in New Zealand early in 1966, following growers' criticism of the existing

transport system, and in particular of the services provided by the Railways Department. Submissions were made on behalf of fruit-growers, the Federation and the Apple and Pear Board, as well as other organisations. Mr F. F. Reid, who conducted the inquiry, recommended that if the consuming public was to be enabled to buy its fruit and vegetables in the best possible condition, then the transport of this produce from the growers' property to the retail counter must be carried out by the speediest medium available and under the best possible conditions. "That object can only be attained by leaving the producer free to choose the most efficient and best means of transport available to him under whatever conditions may be prevailing at the time his produce is ready to be marketed," stated Mr Reid in his report. "If the economic protection of the railway services is considered to be more important in the public interest, however," he added, "then the Railways Department must be prepared to provide a more adequate service than it is providing at present."

Fruitgrowing is still a somewhat hazardous occupation and the grower never quite knows how a season will turn out. In some districts a very severe frost or a severe onset of hail can wipe out his crop overnight. A number of proposals have been made for some kind of storm damage insurance for fruitgrowers but nothing has eventuated, mainly because growers in districts not so affected have not lent their support to any compulsory scheme and because of the difficulty in ensuring fair administration. Growers did agree on a scheme whereby part of their income in good years would be paid into a special non-taxable account which could be drawn upon in a lean year and the tax paid at that time. The Federation tried several times some years ago to interest the Government in such a scheme, but the Government's view was that the creation of a storm damage reserve was not warranted. Very few growers have any insurance against loss of crop from such causes.

On the cultural side, the extension of grassing down of orchards has been a noteworthy development in recent years. About one-third of the total acreage in pip fruit is now sown down in permanent sward. The proportion of orchard under grass is about one-half in the North Island and one-fifth in the South Island. Most fruitgrowers who have adopted grassing down are overwhelmingly in favour of it. Some growers have not grassed down because of concern that there might be an added frost hazard with grassed orchards. This matter has received considerable investigation both in New Zealand and overseas, however,

and the evidence suggests there is little need for concern, providing the grass is kept closely mown during the fruit-setting period.

The area in fruit crops, though not nearly so great as it once was, is slowly but steadily increasing again. In 1965 there was an increase of 895 acres. Pip fruit accounted for just on half of this increase and stone fruit for almost a quarter. The rest of the increase was shared between citrus and berryfruit. At present about two-thirds of the apple and pear trees being planted are going in as new orchards or extensions to orchards and the remaining third as replants.

Overseas fruitgrowing visitors have been impressed not only by the fruit production of New Zealand orchards, but also by the high degree of mechanisation of the industry—the efficiency of shed operation, high-capacity graders, fine cool-storage facilities, bulk-handling methods and labour-saving devices, right from the production point in the orchard to the final operations in the packing house.

Co-operative methods of production, with those facilities shared among a number of growers, would no doubt have made for greater economic efficiency had such an approach been adopted some thirty years ago. However, New Zealand growers have come too far along the road of individualism to change radically now, and probably few would want to make such a change if they were to start again, even though considerable capital has been involved in equipping their orchards with only the bare essentials in the way of machinery. Over-capitalised they may be, but New Zealand fruitgrowers can derive much satisfaction from knowing that they are as up-to-date with their orchard techniques as their counterparts anywhere in the world.

12

WHAT OF THE FUTURE?

by Frank Archer, 1950-66 president of the
New Zealand Fruitgrowers' Federation.

WHEN ONE IS ASKED to express views on the future of the New Zealand fruit industry one is usually a little wary. This wariness is due to the many complex problems and twists one encounters throughout all branches of the industry and to the fact that sometimes, when we are trying to solve these problems, despite all our efforts unexpected answers come up which completely upset the predicted result. However, in my opinion the key to future success is the same as it has been in the past: efficiency—in our marketing, our production, our cost structure and our organisation.

The Apple and Pear Board has made wonderful progress in extending our markets overseas and has been able not only to increase sales in our traditional markets but also to open up many new markets. But there is still a large area of the Northern Hemisphere in which we have no direct sales, although undoubtedly some of our fruit finds its way into these countries. I feel that the time must come when we will extend our European sales further eastward and have direct contact with these countries. There is a large potential market for our fruit in these areas. Then there are our near-neighbour countries of the northern Pacific. I think we all realise that as the standard of living improves in these areas—and it surely will—there will be a great extension of New Zealand's trade to this part of the world and New Zealand fruitgrowers will find an increasing demand there for their product. And with faster and improved transport, our fruit trade will not only be limited to apples and pears. Our domestic market, with its steady increase of consumer population combined with our high standard of living, should continue to absorb more and more of our home-

grown fruit. The demand for our canned fruit and juices should also benefit from this extension in trade both at home and abroad, and could well mean an extension of this branch of the industry.

This increased trade, however, is not going to come automatically. It will be very necessary to get out to get our share of the business. Competition in the fruit world is increasing every year, but not all of our competitors are so efficient in the growing and marketing of the fruit as is the New Zealand grower. This, of course, gives us some advantage, but in other things, such as freight, we are sometimes at a disadvantage. So we must continue to be efficient and, where possible, improve on this efficiency.

Every encouragement and support must be given by growers to the Apple and Pear Board's efforts, no matter how small the initial shipments to new markets are.

Production of all fruits is increasing, and I think that the New Zealand grower has this matter well in hand. This is evident from the increase in production over the past few years, and a further increase can be expected with the coming into bearing year by year of the many acres of young trees. Yes, I think production is amply covered. Producers must now concentrate on growing quality fruit.

My third essential for the future success of the industry is the control of costs. Unfortunately, when those who are not fruit-growers talk of cutting the industry's costs they usually mean cutting that part of the cost which is the grower's profit. This must never be allowed to happen. The efficient grower, like all other producers or traders, must have a sufficient profit motive to keep his industry healthy. If he fails in this all who handle his product or contribute toward its production or consumption will suffer, right through the chain from producer to consumer. I feel that the real saving in costs in our industry will come through the help of the scientist. Much has already been done to help our industry by scientific research, and it is to the scientists that we will have to look in the future to help us keep our costs down. Much has already been done, but it is only a start, and as the years go on work in soils, disease prevention and particularly in mechanisation of the handling of the crop in picking, sorting and many other aspects of fruitgrowing will develop. Some ideas along these lines are already in the experimental stage at universities and research stations throughout the world. It is very necessary that we are alert to these developments and are able to take the fullest advan-

tage of them to enable us to market a quality article at the lowest possible cost.

Organisation is by no means the least important essential in ensuring the future success of the industry. During the past fifty years the industry has come a long way, and I think we can say that our progress has been far greater than was ever imagined by those pioneer growers of fifty years ago. I would say very definitely that the organisation and co-operation by the growers has played the most important part in this progress. This organisation started when the first growers met to discuss their mutual problems and then formed fruitgrowers' associations and later their national body. To my way of thinking this strong development of organisation, which became a co-operative movement of growers, accounts for the survival of the industry and for the progress it has made. In the years ahead it will be most necessary to keep alive this spirit of co-operation.

Unfortunately, I feel that this spirit which imbued the early fruitgrowers of this country is not nearly so strong today as it should be. I fear I have noted a trend (probably due to better times) away from that early enthusiasm the industry had. All the steps forward in the industry have been made through a combined and co-ordinated effort of the individuals as a whole, working not for the individual but for the industry of which they are a part. The individual has been prepared to suppress some possible personal gain for the good and success of the industry to which he and his family looked for support. I feel that some of this unified effort is being lost and I consider that the industry must regain this feeling and outlook to ensure continued success.

The industry has the essentials for much further progress, and its prospects as an industry, producing a health-giving food which the world needs today, are good. There will, of course, be ups and downs on the road ahead, as there have been in the past, but they did not deter our earlier generation of growers. Today and in the future growers must support and continue to build up their organisations. They may change them if they think they can improve them, but above all they should hang on to them at all costs. There is the old saying "United we stand, divided we fall," and this is very appropriate to the fruit industry.

Appendix I
New Zealand Fruitgrowers' Federation

DIRECTORS

1916	A. P. Allport (Nelson) ....	....	....	1916-18
	H. E. Anderson (Wellington) ....	....	....	1916-18
	J. Bennetts (Otago) ....	....	....	1916-23
	A. Davidson (Otago) ....	....	....	1916-18
	J. Longton (Canterbury) ....	....	....	1916-22
	A. M. Robertson (Hawke's Bay) ....	....	....	1916-45
	A. Wilson (Auckland) ....	....	....	1916-18
1917	E. C. Walton (Auckland) ....	....	....	1917-20
1918	E. B. Izard (Nelson) ....	....	....	1918-21
	F. E. Nottage (Nelson) ....	....	....	1918-22
	H. Paltridge (Auckland) ....	....	....	1918-22
1920	T. W. Attwood (Auckland) ....	....	....	1920-25
	J. C. Neill (Wellington) ....	....	....	1920-21
1921	T. C. Brash (Nelson) ....	....	....	1921-46
1922	F. W. Cone (Canterbury) ....	....	....	1922-31
	H. S. Izard (Auckland) ....	....	....	1922-29
1923	J. Allan (Nelson) ....	....	....	1923-26
1924	H. Turner (Otago) ....	....	....	1924-31
1926	D. Haining (Nelson) ....	....	....	1926-29
	W. A. Tate (Wairarapa) ....	....	....	1926-46
	T. H. Torode (Marlborough) ....	....	....	1926-34
1929	J. Dicker (Nelson) ....	....	....	1929-40
	W. J. Rodger (Auckland) ....	....	....	1929-41
1931	R. Kinnaird (Otago) ....	....	....	1931-47
	F. W. Sisson (Canterbury) ....	....	....	1931-40
1935	H. Robinson (Marlborough) ....	....	....	1935-38
1938	J. W. T. Doggett (Marlborough) ....	....	....	1938-53
	A. R. Emanuel (Auckland Citrus) ....	....	....	1938-42
1940	L. B. Robinson (Nelson) ....	....	....	1940-47
	H. R. Sampson (Canterbury) ....	....	1940-49;	1952-
1943	A. B. Congdon (Auckland) ....	....	....	1943-51
1945	A. Miller (Hawke's Bay) ....	....	....	1945-55
1947	T. F. A. Archer (Nelson) ....	....	....	1947-66
	J. H. George (Otago) ....	....	....	1947-54

Directors—Continued

1949	W. G. Mottram (Canterbury)	.....	.....	.....	1949-52
1951	M. A. Cruickshank (Auckland)	.....	.....	.....	1951-61
1953	V. G. Glennie (Marlborough)	.....	.....	.....	1953-
1954	J. Hainsworth (Otago)	.....	.....	.....	1954-66
1955	H. Osborne (Hawke's Bay)	.....	.....	.....	1955-
1961	W. S. Rust (Auckland)	.....	.....	.....	1961-63
1963	L. W. Smith (Auckland)	.....	.....	.....	1963-
1966	J. R. Waith (Otago)	.....	.....	.....	1966-

Appendix II

New Zealand Fruitgrowers' Federation

* EXECUTIVE STAFF

Head Office

General Manager:

A. C. Greer

Secretary:

B. R. McLaren

General Sales Manager: *Technical Adviser:* *Accountant:*
C. R. Macleod D. A. Slade R. A. Ridding

Assistant Sales Manager:
J. B. Pinnington

Auckland

Branch Manager: *Assistant Branch Manager:*
S. M. Conway A. G. Pollock

Hastings

Branch Manager: *Assistant Branch Manager:*
A. J. King J. A. Deyell

Nelson

Branch Manager: *Assistant Branch Manager:*
S. J. Riach G. A. Dutton

Executive Staff—Continued

Motueka	Blenheim
<i>Branch Manager:</i>	<i>Branch Manager:</i>
N. H. Fraser	A. E. Smale
Christchurch	Roxburgh
<i>Branch Manager:</i>	<i>Branch Manager:</i>
P. S. Marshall	B. C. Lindsay
Alexandra	
<i>Branch Manager:</i>	
I. R. Dwyer	

* As at August 1966.

Appendix III

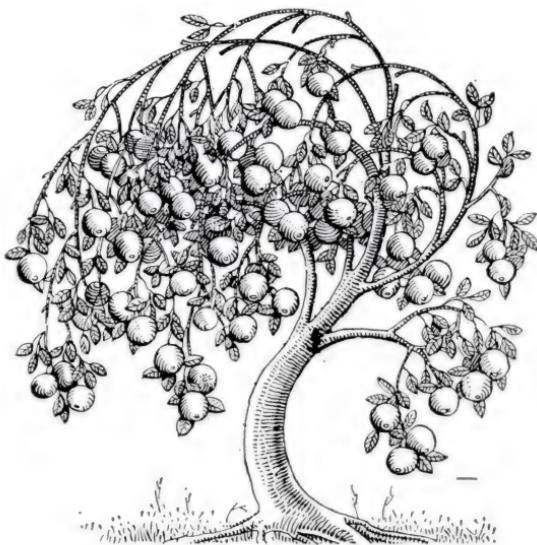
APPLE AND PEAR BOARD

MEMBERS

1948	H. Turner, chairman	.....	.....	.....	1948-54
	J. Hainsworth	.....	.....	.....	1948-51
*1948	K. B. Longmore	.....	.....	1948-1950,	1953-
	G. C. McMurtry	.....	.....	.....	1948-50
	M. J. Moriarty	.....	.....	.....	1948-51
1950	B. D. A. Greig	.....	.....	.....	1950-53
	J. H. Parker	.....	1950-64,	chairman	1954-64
1951	W. Benzies	.....	.....	.....	1951-
	H. R. Sampson	.....	.....	.....	1951-
1954	A. Miller	.....	.....	.....	1954-55
1955	A. D. Masters	.....	.....	.....	1955-59
1959	S. D. Sinclair	.....	.....	.....	1959-
1964	A. D. Thomson	.....	.....	.....	1964-

* K. B. Longmore, chairman from 1964.





Fifty fruitful years . . .

The BNZ congratulates the NZ Fruitgrowers' Federation on its 50th anniversary.

The BNZ was itself 55 years old when, in 1916, the growers of the kindly fruits of the earth joined together in mutual help.

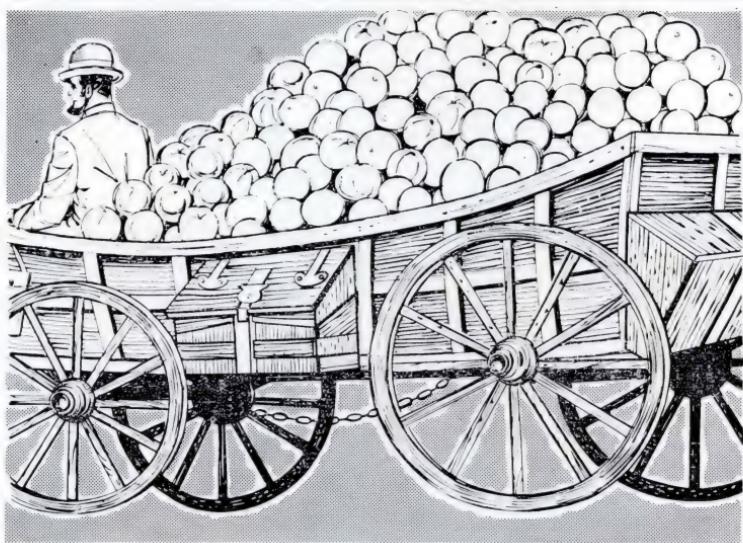
Today every New Zealander benefits from their early efforts in the growth of an important industry.

In the same way, the Bank of New Zealand, the only wholly New Zealand owned Trading/Savings Bank, helps our own country. All profits stay in New Zealand to be securely invested in projects of national importance.

The BNZ returns the maximum permissible percentage on your savings—while helping New Zealand to grow.

Bank of New Zealand

New Zealand's own bank



going to market

was an important occasion 50 years ago

Today it has even wider significance. N.Z. Forest Products Limited has long been associated with the fruit growing industry in the packaging of fruit for market; a market which now stretches far and wide across the world. Wherever New Zealand fruit travels, it has the protection of wooden cases and corrugated fibre containers made with components manufactured by N.Z. Forest Products Limited and moulded pulp trays from its subsidiary company, Fibre Products (N.Z.) Ltd.

Modern fruit packaging for today's markets from



N.Z. Forest Products Limited

PENROSE • KINLEITH
WIKAHATANE

" Protector " extend their hand to the New Zealand Fruitgrowers' Federation on this their 50th Jubilee, and through them, offer Protector Gold Cross respirators and safety equipment to maintain the high standard of safety Fruitgrowers, Market Gardeners and Orchardists demand.

Protector

SAFETY PRODUCTS (N.Z.) LTD.



PROTECTOR RESPIRATOR HOOD

Very light overall weight. Polyesterised nylon hood. Optilite window affords widest range of vision. Combines with R2000 respirator to provide complete head, eye and neck protection.

CAT. No. R4086 AGRI-CULTURAL HOOD.

Write now for fully descriptive literature to your nearest stockist.

MASON BROS. (MESCO) LTD.

NEW ZEALAND
INDUSTRIAL GASES
LIMITED.

WELDWELL (N.Z.) LTD.
N.Z. FRUITGROWERS'
FEDERATION LTD.

(Agricultural Safety Lines)
and their authorised stockists throughout New Zealand.

PROTECTOR SAFETY
PRODUCTS (N.Z.) LTD.
3-5 Pollen Street, Auckland

The A.M.P. Society, underwriter to more than 1000 of New Zealand's "Successful Employers," is proud to have provided specialised staff superannuation services to the **FRUITGROWERS' FEDERATION** for 40 years.

successful employers provide



STAFF SUPERANNUATION



We congratulate the Fruitgrowers' Federation on the occasion of their GOLDEN JUBILEE and we thank them for their past co-operation and the manner in which they have marketed our product, TEDION, to growers throughout New Zealand.

TEDION V-18

AGAINST RED SPIDER



DUPHAR DIVISION, PHILIPS ELECTRICAL INDUSTRIES OF NEW ZEALAND LIMITED

TUCK AND WATKINS LTD.

P.O. BOX 5005 : : : FRANKTON
PHONE: 75-153 - HAMILTON



**SAWMILLERS, TIMBER MERCHANTS AND BOX
MANUFACTURERS**

Branches at Putaruru and Taupo

We manufacture over $2\frac{1}{2}$ million cases per year, both Fruit and Commercial containers.

Our Timber Yard at Frankton supplies all grades of timber either treated, dressed or pre-cut. Enquiries solicited.



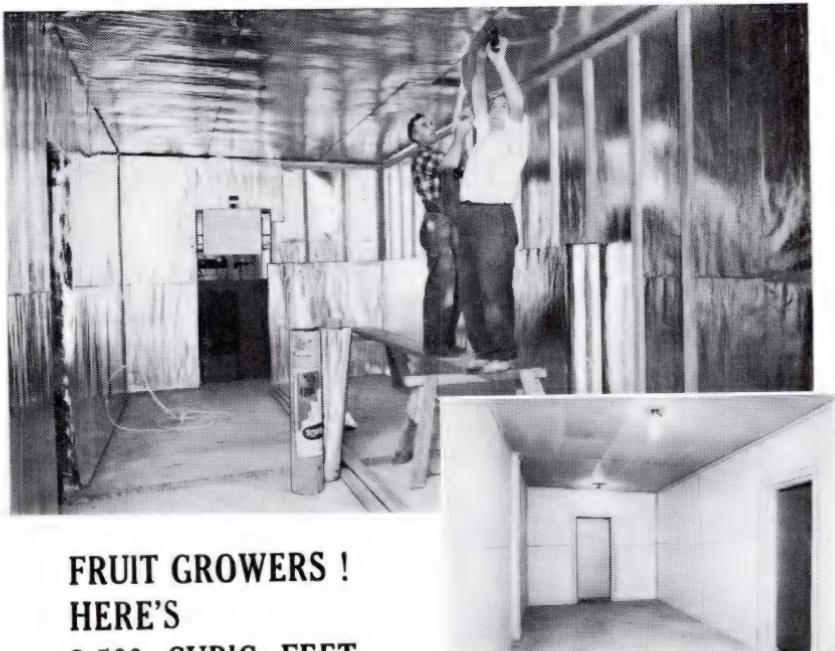
We offer the New Zealand Fruitgrowers' Federation Ltd. our heartiest congratulations on the occasion of their 50th Anniversary of operations.

Our Company has had the pleasure of supplying fruit cases to your organisation since our formation 35 years ago.

The courtesy and friendliness of your staff has been outstanding.

Our Directors wish your company a very successful and prosperous future.





**FRUIT GROWERS !
HERE'S
2,500 CUBIC FEET
OF COLD STORAGE THAT WILL PAY FOR ITSELF**

in lower storage costs, savings in time
and labour, better quality control and
elimination of fruit loss.

The answer is SISALATION reinforced aluminium foil. SISALATION'S low permeability factor ensures the permanent moisture vapour barrier essential for low temperature operation. In this store, four layers of SISALATION in walls and ceiling allow temperatures to be controlled down to 32°F.

Can you afford to be without your own cool store?
Manufactured and Distributed by NEW ZEALAND SISALKRAFT LTD.

Reinforced Aluminium Foil Insulation

SISALKRAFT

SISALATION

SISALKRAFT TECHNICAL SERVICE IS AVAILABLE FOR YOUR CONVENIENCE

AUCKLAND: Phone 595-062
WELLINGTON: Phone 55-944

CHRISTCHURCH: Phone 62-286
DUNEDIN: Phone 88-319



**THE NEW ZEALAND APPLE
AND PEAR MARKETING BOARD**
congratulates
**THE NEW ZEALAND FRUIT-
GROWERS' FEDERATION LTD.**
*on the occasion of its
50th jubilee*

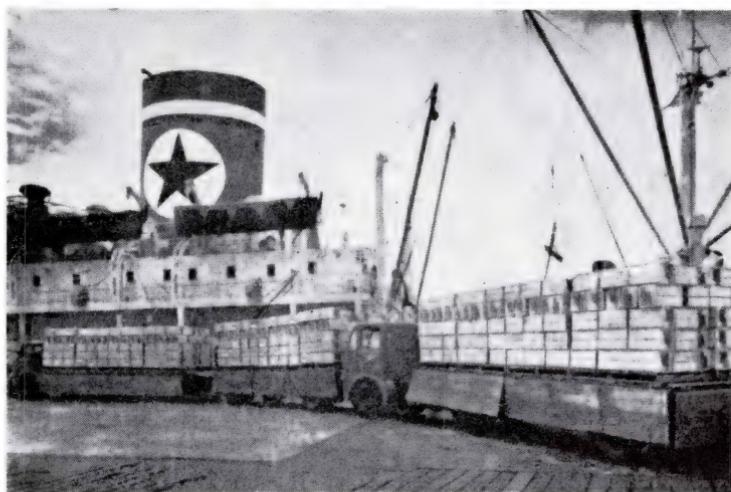
IT was through the efforts of the membership of Fruitgrowers' Associations, who hold the share capital of the Federation, that the New Zealand Apple and Pear Marketing Board was born in 1948 for the purpose of providing a local marketing organisation as well as catering for the export of apples and pears. Unity is strength and through unity the Board has progressed for eighteen years. Continued unity is required to ensure that both organisations attain greater age.

NEW ZEALAND APPLE AND PEAR MARKETING BOARD
SOLE DISTRIBUTORS OF NEW ZEALAND APPLES AND PEARS

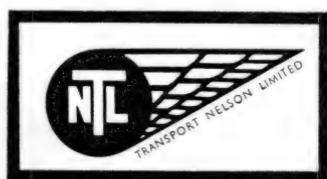
AS IT WAS IN THE BEGINNING . . .



BUT NOW AFTER 50 YEARS
The N.Z. Fruitgrowers' Federation
Has Made Outstanding Progress



**TRANSPORT NELSON
LTD.**
Salutes You With
Its
Emblem of Progress



THE NEW ZEALAND FRUITGROWERS' FEDERATION LTD.

**50 years' experience
servicing all the needs
of the fruit industry.**

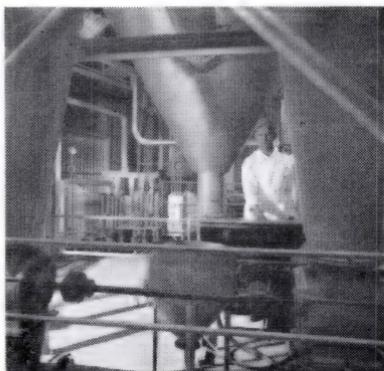
FRUITGROWERS CHEMICAL CO. LTD.
compliment the NEW ZEALAND FRUITGROWERS'
FEDERATION LTD. on fifty years of service
to the industry and look forward to a continuation
of the close co-operation between our two
organisations in the years ahead.



FRUITGROWERS CHEMICAL CO. LTD.
PORT MAPUA, NELSON

FRUITGROWERS CHEMICAL CO. LTD.

**35 years' experience
producing spray chemicals
for the fruitgrower.**



The Fruitgrowers Chemical Co. Ltd. tests chemicals in its laboratory and in its own orchards . . . testing to keep rigid quality control.



FUNGICIDES — INSECTICIDES — MITICIDES

Produced by the **MICRONIZER**^{*}
and **COLLOIDAL REDUCTION**[†] processes

* N.Z. Trade Mark Fruitgrowers Chemical Co. Ltd.

† N.Z. Patent of Fruitgrowers' Chemical Co. Ltd.

B.A.S.F.

**CONGRATULATE
THE NEW ZEALAND FRUITGROWERS'
FEDERATION LIMITED**

on the occasion of their

50th JUBILEE



**BADISCHE ANILIN & SODA FABRIK AG
LUDWIGSHAVEN GERMANY**

Manufacturers of:

**NITROPHOSKA
NITROGREEN
AMMONIUM SULPHATE
UREA
CALCIUM NITRATE
CITOWETT
POLYRAM**

Sole N.Z. Importers:



HENRY H. YORK & CO. LTD

AUCKLAND

WELLINGTON

CHRISTCHURCH



50 years ago no-one had even thought about putting apples to sleep

A half-century ago the fruit market extended as far as next door's freckle-faced kid, a good season meant rotting fruit underfoot. Today shrewd orchardists sell throughout the country when the market price is mouth-wateringly right. They put nearly every fruit under the sun to sleep. Westinghouse cool-storing is like hibernation; the fruit goes to sleep, but stays alive and fresh.

1916 - 1966 Fifty years of Fruitgrowers' Federation leadership.

WESTINGHOUSE
RECOLD COOL STORE

H. W. CLARKE (N.Z.) LTD.
42-46 Cable St., Wellington;
102-104 Warren St.,
South. Hastings; 10 Teed
St., Newmarket, Auckland;
256 Cashel Street, Christ-
church; 26 Alma Street,
Nelson; Cnr. Great King
and St. Andrew Streets,
Dunedin; 159 Spey Street,
Invercargill.

HOECHST CONGRATULATE
THE NEW ZEALAND FRUITGROWERS'
FEDERATION LIMITED.

on the occasion of their

50th JUBILEE



**FARBEWERKE
HOECHST AG
FRANKFURT GERMANY**

Manufacturers of:

**MOROCIDE
THIODAN
AFALON
PCNB**

Sole N.Z. Importers:

HENRY H. YORK & CO. LTD
AUCKLAND WELLINGTON CHRISTCHURCH

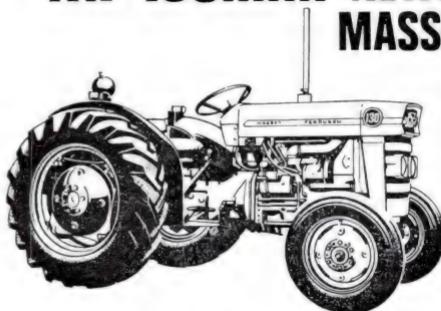


MF 135.....WORLD'S TOP SELLING TRACTOR



The MF 135 is the world's best-selling tractor because it does the best all-round job of any tractor in its class and it has the features you need—including: proven Multi-Power; large tyre sizes; power-adjusted wheels.

MF 130..... NEWCOMER TO MASSEY-FERGUSON'S RUGGED NEW BREED



Low cost, fully-equipped diesel. The perfect tractor wherever a small tractor is needed; also the ideal second tractor.

THESE ARE THE TRACTORS THE 'FRUITGROWERS' USE

Sole N.Z. Massey-Ferguson Distributors:
C. B. NORWOOD LIMITED
Licensed Motor Vehicle Dealers
P.O. BOX 298, WELLINGTON
DEALERS EVERYWHERE

We extend to the N.Z. Fruitgrowers' Federation Ltd., our heartiest congratulations and very best wishes on the occasion of their 50th Jubilee. The 50 years have been years of progress and achievement, the result of continued service, wise direction, and sound management. The expansion and prosperity of the Industry as a whole is a tribute to all who have served its interests so well.

We are proud to have been associated with the Federation for many years, and look forward with pleasure to a continuation of this association in the years to come.

May the future bring greater rewards to the N.Z. Fruitgrowers' Federation Ltd. and all its members.

ROHM AND HAAS COMPANY

PHILADELPHIA, U.S.A.



and their agents in New Zealand

MAIR & CO. (IMPORTERS) LTD.,

AUCKLAND, WELLINGTON, CHRISTCHURCH.

**These grapes
are lucky**

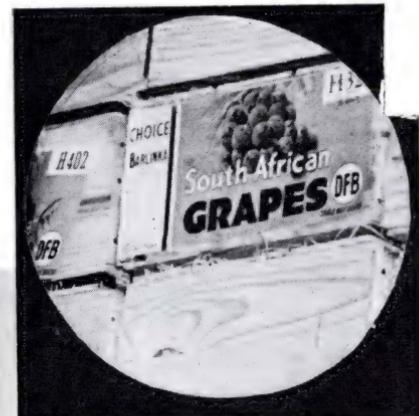
**... because
they're travelling
cargon-snug by
RAIL-AIR!**

Let *your* fruit be lucky too and travel cargo-snug. Simply consign all inter-island produce "Rail-Air" from your nearest Railway Station.

Rail-Air can also offer special contract flights between any two New Zealand airports. There is capacity for almost 6 tons or 1,500 cubic feet of freight on each flight. And costs are surprisingly low.

Discuss Rail-Air services with your local Railway Station-master, Goods Manager or Commercial Agent.

You'll be glad you did.



M7/11W



BRITISH TRADERS' INSURANCE CO. LTD.

Transacting all forms of Insurance and now
celebrating its centenary wishes to extend its
congratulations to the N.Z.F.F. Ltd. on the
occasion of its Jubilee.



H.O. for New Zealand:
Guardian Building,
18 Brandon Street,
Wellington.

C. M. Brown,
Manager for N.Z.

Gerrard

ARE PROUD TO BE ASSOCIATED
WITH THE NEW ZEALAND FRUITGROWERS'
FEDERATION AND CONGRATULATE THEM ON
THEIR GOLDEN JUBILEE.



GERRARD WIRE TYING MACHINES (N.Z.) LTD.

HEAD OFFICE:
P.O. BOX 2413
AUCKLAND

BRANCHES: DUNEDIN - P.O. BOX 1270
CHRISTCHURCH - P.O. BOX 1991
WELLINGTON - P.O. BOX 6196

CONGRATULATIONS TO
THE NEW ZEALAND FRUITGROWERS'
FEDERATION LIMITED

on the occasion of their

50th JUBILEE

FROM

BAYER



LEVERKUSEN GERMANY

Manufacturers of:

GUSATHION 25% & 50% W/P
METASYSTOX (i)
DISYSTON
FOLIDOL M. 50
FOLIDOL OIL
CUPRAVIT

Sole N.Z. Importers:

HENRY H. YORK & CO. LTD

AUCKLAND

WELLINGTON

CHRISTCHURCH



FREIGHTWAYS

TRANSPORT SERVICES



Congratulations
New Zealand Fruitgrowers'
Federation Ltd.
on 50 Years of Magnificent
Progress.

Head Office:
ALLIED FREIGHTWAYS LTD.
Phone 41-771
WELLINGTON



TRADING ASSOCIATES

DALES FREIGHTWAYS LTD.
AUCKLAND
HAMILTON

RICHARDSONS FREIGHTWAYS
LTD.
HAMILTON
TAUPO
TURANGI

FREIGHTWAY (N.Z.) LTD.
AUCKLAND

PETTIGREWS FREIGHTWAYS
LTD.
HASTINGS
NAPIER
TAUPO
ROTORUA

WILKIES FREIGHTWAYS LTD.
HASTINGS

O'BRIENS FREIGHTWAYS LTD.
WELLINGTON
GUTHRIES FREIGHTWAYS LTD.
CHRISTCHURCH



BAIGENT & SONS LTD.



New Zealand's largest Fruit Case Manufacturers
offer their congratulations to the New Zealand
Fruitgrowers' Federation Ltd. on the occasion of
its Golden Jubilee, and look forward to another
50 years of pleasant and harmonious relationship.



H. BAIGENT & SONS LTD.

RUTHERFORD STREET, NELSON



*"a hearty
handclap"*

ON THE FEDERATION'S
50TH JUBILEE

At this time, we at Esso take great pleasure in extending our congratulations to the New Zealand Fruitgrowers' Federation Ltd. on fifty years of significant contribution to the development of your industry.

We sincerely hope that the next fifty years will be even more 'fruitful' and, you may be sure, our world-wide chemicals research organisation will continue to make its contribution, by the development of more and better chemicals for the Fruitgrowing Industry.

FROM THE MARKETERS OF

FLIT 406

ESSO STANDARD NEW ZEALAND LTD.

Auckland and Wellington. CHEMICALS



To The Fruitgrowing Industry of Nelson

We are indeed privileged to serve the transport requirements of the Fruitgrowing Industry in Nelson and this season, in particular, our Company was responsible for carting an all-time record of two million, four hundred and eighty thousand, one hundred and forty-nine (2,480,149) cases, mostly within 12 weeks. This was the total number of cases which was transported from orchard to inspection depot or processing factory and from inspection depot to cool store or ship's side for export.

Efficiency and speed was achieved first by a team effort from our Staff, and secondly, with the excellent co-operation we received from everyone who assisted our Company to handle this valuable product of "Sunny Nelson".

We appreciate only too well the responsibility involved in the movement of this very large quantity in so short a period of time, and trust that our effort has satisfied our many valued clients associated with this industry which is vital to the economy of this District.

Yours sincerely,

D. D. Merritt,

Managing Director.

KIRBYS CARRIERS LTD.

"Just 'phone 5359 for service."

■ **Mobil Oil New Zealand Limited
offers sincere congratulations
to the Federation on the
completion of a half-century of
service to the
Fruitgrowing industry**

■ **At this time, Mobil is mindful of
its long association with
the Federation and of the
mutual confidence in
each other's contribution to
future progress.**

- MOBIL SUPERIOR 663 SPRAYING OIL
- MOBIL RED SPRAYING OIL • MOBIL WHITE SPRAYING OIL



THE NAME YOU CAN TRUST

